COLUMBIA COUNTY
LAND DEVELOPMENT SERVICES
COURTHOUSE
230 STRAND
ST. HELENS, OREGON 97051
(503) 397-1501

General Application File No. PRE 21-09

GENERAL LAND USE PERMIT APPLICATION

TYPE OF PERMIT: ____ Zone Change ____ Temporary Permit
__X__ Site Design Review ____ Resource Management Plan

Other: _____

APPLICANT: Name: OHM Equity Partners LLC

Mailing address: 33470 Chinook Plaza 213, Scappoose, OR 97056

Phone No.: Office 503.310.7921 Home _____

Are you the ~~property owner?~~ ~~owner's agent?~~ X Applicant/Developer

PROPERTY OWNER: ____same as above, OR:

Name: SPMC Holdings, LLC

Mailing Address: 2604 SW Buckingham Avenue, Portland, OR 97201

PROPERTY ADDRESS (if assigned): 57246 Hazen Road, Warren, OR 97053

_____

TAX ACCOUNT NO.: 4213-D0-00103 Acres: 77.0 Zoning: CS-R

_____ Acres: _____ Zoning: _____

_____ Acres: _____ Zoning: _____

PRESENT USES: (farm, forest, bush, residential, etc.)

Use:	Approx. Acres
Golf Course	77.0
Total acres (must agree with above):	77.0

PROPOSED USES:

Private Golf Course and RV Park. 103 space private recreational vehicle campground/RV park and the re-design of the existing golf course, clubhouse, restaurant, and banquet facilities located in the Community Service Recreational (CS-R) zone.

WATER SUPPLY: X Private well. Is the well installed? X Yes ____ No

_____ Community system. Name_____

METHOD OF SEWAGE DISPOSAL: _____ Community Sewer. Name_____
_____ Not applicable.
X Septic System.

If Septic, does the subject property already have a system? X Yes _____ No
If no, is the property approved for a Septic System? _____ Yes _____ No

CONTIGUOUS PROPERTY: List all other properties you own which have boundary lines touching this property:

Tax Account No.	Acres	Co-owners (if any)

CERTIFICATION:
I hereby certify that all of the above statements, and all other documents submitted, are accurate and true to the best of my knowledge and belief.

Date: 05/17/2022 Signature: Joe Kessi 05/17/2022

NOTE: Please attach an accurate and detailed plot plan, including property lines, existing and proposed structures, location of septic tank and drainfield, farm - forest areas, large natural features (cliffs, streams, etc.).

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Planning Department Use Only

Date Rec'd._____ Hearing Date:_____
Or: Administrative_____

Receipt No._____ Stormwater & Erosion Control Fees _____

Zoning:_____ Staff Member:_____

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OHM EQUITY PARTNERS

UPDATED PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

UPDATED PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

File Number: PRE 21-09

Owner: SPMC Holdings, LLC
2604 SW Buckingham Ave
Portland, OR 97201

Applicant: OHM Equity Partners LLC
33470 Chinook Plaza 213
Scappoose, OR 97056

Location: The subject property is located at the site address of **57246 Hazen Road in Warren, OR**

MAP ID NO: 4213-D0-00103

Zoning: Community Service - Recreational (CS-R)

Site Size: ±77.0 Acres

Request: Approval of 103-space private recreational vehicle campground/RV Park and the redesign of the existing golf course, clubhouse, restaurant, and banquet facilities located in the Community Service Recreational (CS-R) zone.

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

Columbia County Zoning Ordinance

Section 1020 Community Service - Recreational (CS-R)

Section 1300 Signs
1313.3 Commercial & Industrial Districts: Aggregate Sign Area Per Parcel

Section 1400 Off-Street Parking and Loading
1417 Unspecified Uses

Section 1450 Transportation Impact Analysis
1450.1 Applicability

Section 1550 Type II Site Design Review
Landscaping Plan

Oregon Administrative Rules

PRELIMINARY STORMWATER AND EROSION CONTROL PLAN	Appendix 25
Letter from Columbia River Fire and Rescue	Appendix 10
Letter from PUD	Appendix 23
Letter from McMullen Well Drilling Corp	Appendix 24

SUMMARY:

We are proposing the development of a new private campground facility in addition to the existing golf course, restaurant, and banquet hall located on tax lot 4213-D0-00103. This parcel is approximately 77 acres in size, zoned Community Service Recreational (CS-R).

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

The property has operated as a golf course with clubhouse, restaurant, bar, and banquet facility since 1959. It has been owned and operated by many different people throughout the years.

Our proposal includes many changes and improvements to the golf course as a whole, but the addition of a campground/RV area provides an additional revenue stream for the property. The new private campground/RV along with the re-design and elevation of the property will create a year long, sustainable business model. The new campground will only be enhancing the property, not taking away from it.

The proposed RV spaces will be full hookup, which will provide electricity, water, garbage, internet, and sewage disposal supported by an on-site septic system. The access point will remain the same for the golf course and to access the new campground area. A new access point is requested for the existing residential home off of Hazen Road. This will create separate entrances for the home and for the golf course.

An RV campground provides additional cash flow stabilizing the property while allowing for it to be maintained to a higher standard. This additional revenue allows the property to be renovated and elevated, making it a destination campground. To accomplish elevating the property, we have contracted with one of the designers of Stub Stewart State Park. He will be responsible for a complete redesign of the entrance, parking lot, golf course plantings, and RV campground screening. This includes a landscaping plan with many natural plantings to the area, including Ironwood trees, which are indigenous to Oregon. He brings experience and expertise to the redesign of the property, while incorporating RV campground sites seamlessly. He has also helped in the landscape design of a few well-known PGA courses.

The clubhouse, restaurant, lounge, and banquet building will be upgraded to attract and make people feel comfortable. The RV campground hookups are positioned along the southeast and south property line and are fully screened abutting an RR-5 parcel and two FA 80 zoned parcels. This area does not interfere with the golf course and is easily screened for our neighbors.

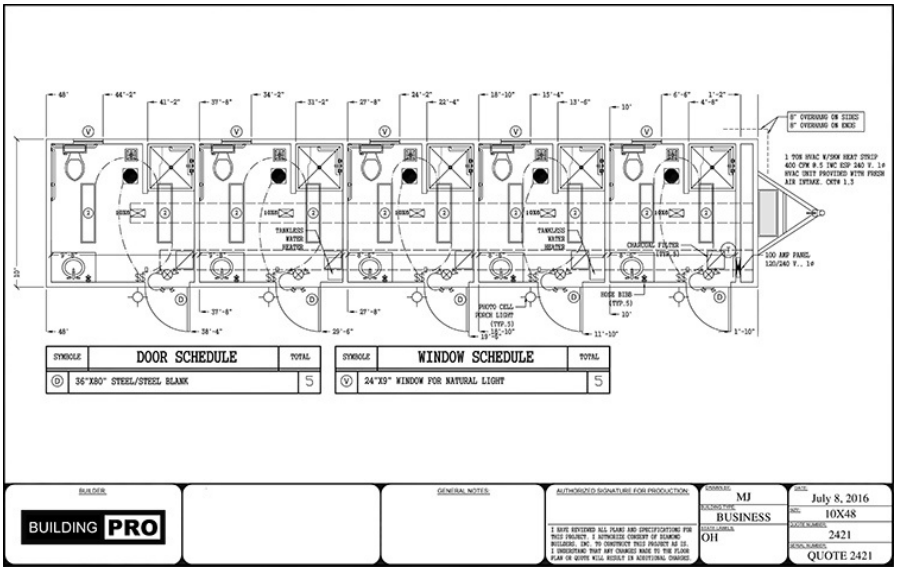
PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

Total Site Development Required for 100 RV Spaces Includes:

- Create road to connect campground/RV area to golf course and main entrance
- Build parking for 103 RV spaces/private campground
- Provide each RV space with full hookup, including electrical, water, and septic
- Install new wastewater treatment system
- Bathroom facility with showers and laundry (20’ by 20’), recycle and trash dumpsters (12’ by 12’ areas) added
- Demolish and move the existing golf cart storage building located at the entrance. Put a new golf course storage building (24’ by 60’) south of the existing clubhouse. Add a new access road to Hazen Road for residential building
- Put in new lighting, pathways, and landscaping
- Replace existing sign with new sign
- Re-design entrance, golf course parking lot, and add a separate entrance for residential lot.

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

POSSIBLE BATHROOM/LAUNDRY BUILDING IDEAS



PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

NEW GOLF CART STORAGE BUILDING POSSIBLE DESIGN IDEAS

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

Columbia County Zoning Ordinance - Community Service Recreational (CS-R):

Section 1020 COMMUNITY SERVICE - RECREATION

1021 Purpose: This section provides for the review and approval of the location and development of special uses which by reason of public necessity and unusual character or effect on the neighborhood may not be suitable for listing with other sections of this Ordinance. The CS-R District is for the establishment of various types of public recreation facilities. The District is intended to function as a regular District within the Community Service designation.

1022 Permitted Uses:

.2 Private recreational facilities such as parks, boat ramps, and campgrounds, whether or not they are open to the public

The State of Oregon includes private RV parks in the definition of a campground. The proposed RV Park/campground will be a private recreational facility in a member only golf course, which is a permitted use in the CS-R Zone.

1024 Restrictions and Conditions: These public facilities have a direct impact upon the adjoining properties. The Commission will study each request to establish a new CS-R use and shall attach adequate conditions to the approval to insure the adverse impact of the recreational use upon the adjoining land uses have been mitigated. A Site Design Review for a Conditional Use in this zone may be processed concurrently with the Conditional Use Permit with a single hearing and a single fee which will be the higher of the 2 permit fees.

This proposal is for a private recreational campground facility. We are not creating a new CS-R use, the property has been used as a recreational facility since 1959 as a golf course. This project is meant to enhance the property and its surroundings, and therefore planning and development will take into account the adjoining properties and community.

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

Conditions shall include:

.1 Landscaping, berming, fencing, or screening.

The landscaping plan includes both aesthetic landscaping and landscaping designed to provide privacy and buffering purposes. Our plan takes into consideration neighboring properties and includes many plants for buffering and screening purposes. The plantings consist of native plants, including the Ironwood tree, which is indigenous to Oregon. Please see Appendix 6 for Landscaping Plan.

.2 Off-street parking in accordance with Section 1400.

The Golf course/clubhouse parking lot will be redesigned, along with the entrance, to include 59 parking spaces, 9' by 18' feet. RV/campground parking will be created with 103 RV parking spaces and each campsite will have an RV parking space, 12' by 46' and space for at least one standard car parking space, 9' by 18' feet.

Find more information on the parking plan and regulation in Section 1400.

.3 Limitations on the type and amount of external lighting.

External lighting will be strategically placed to limit interference with adjacent properties. Lighting will also be directed towards the property, not outward to adjacent properties. The proposed RV/campground is at least 100 feet from neighboring structures, in most areas even more. See Appendix 7 for Lighting Plan.

.4 Limitations on the number and location of access points which connect with County roads or public ways.

The current access point for the golf course will also be used for the proposed private RV/campground area. We are requesting a separate access point for the residential home, so that it will be separated from the golf course and RV campground access.

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

.5 The Commission may attach as many conditions, such as setbacks, screening, off-street parking and unloading, construction standards, maintenance and landscaping requirements, as it deems necessary to protect the public health, safety, welfare, the adjoining property owners and the public interest.

There are no designated minimum setbacks in this district. See Appendix 10 for response from Columbia River Fire and Rescue.

.6 A new CS-R use within an Urban Growth Boundary shall be served by public water and public sewer when appropriate. The Commission may waive the requirement for connection to public sewer if it can be shown that the proposed use can be safely served in another manner. In this case, the Commission shall require that the CS-R use be connected to public sewer when it becomes available to the site.

A new CS-R use is not being requested. CS-R includes recreational facilities, including golf courses, RV parks/campgrounds. The proposal includes the addition of an onsite sewer system and use of water from the existing well and aquifers. This property is not located within the Urban Growth Boundary, as shown on the map below.

URBAN GROWTH AREA IN YELLOW:

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

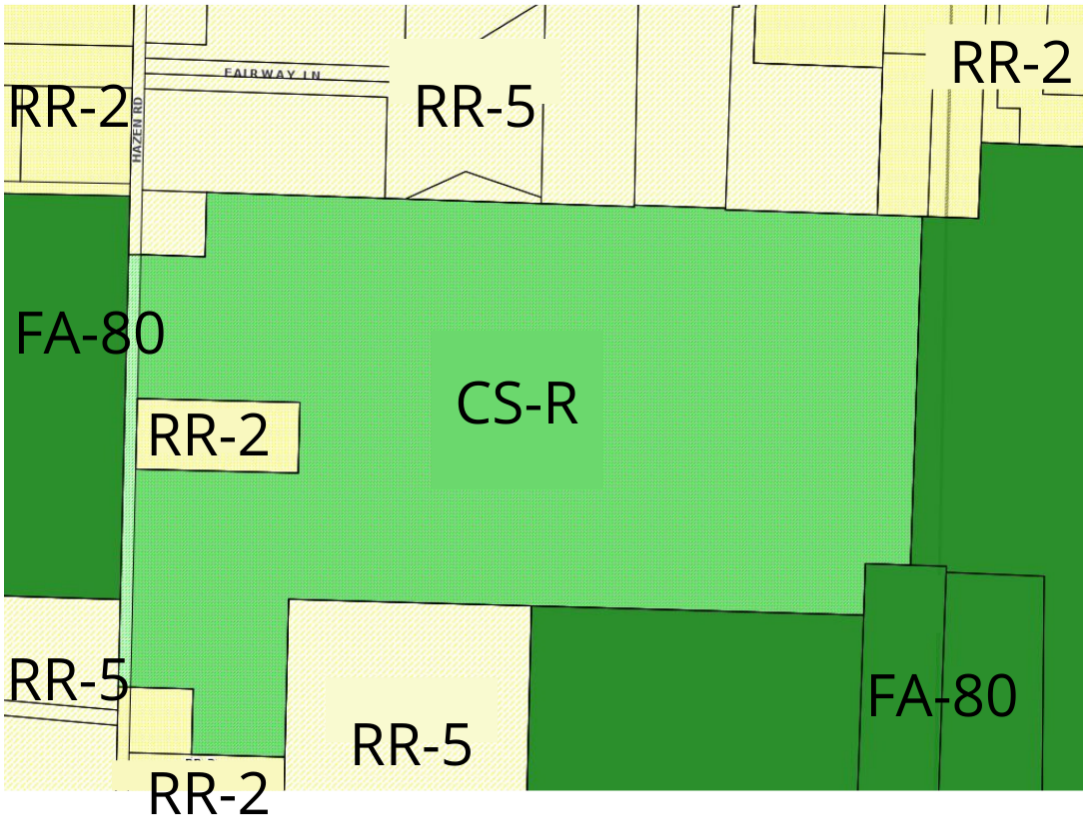
1025 Approval of Community Service-Recreation use outside the Urban Growth Boundaries. Before a CS-R use is approved, outside the Urban Growth Boundaries, the Commission shall find that the CS-R use:

.1 Is consistent with the character of the area.

The property has been a golf course since 1959 and restaurants and bars were added later. At the time, the surrounding properties were all farm land. In recent years, the surrounding properties have become more residential, neighboring properties now include Rural Residential and Farming Agriculture. A private RV/campground facility is similar to housing and is a temporary accommodation.

The proposed RV/campground space is consistent with the use of a golf course and park, and it is very common for golf courses and parks to also have RV parking. Therefore, the proposed campground addition is very much consistent with the character of the area.

PROPERTY AND NEIGHBORING PROPERTIES



PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

.2 Will not adversely affect natural resources of the area.

The proposed private RV/campground facility and re-design of the entrance and parking lot, will enhance the natural beauty of the property. This property has been utilized as a golf course since 1959 and has used the natural well and surface water at the property for irrigation to keep the golf course green. There has also already been a septic system on the property for the current structures. A drainage engineer will also be utilized, to ensure proper and required additional drainage for the new campground area.

This project will improve the natural landscaping, with the addition of lots of natural vegetation included in the landscaping plan, including Ironwood trees, which are indigenous to Oregon.

The proposed campground is not located in the floodplain, all parts of the RV park are located at least 100 feet from the floodplain.

MAP OF FLOODPLAIN

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

The RV park will not be located on major wetlands. R4SBC and PUBHx wetland streams are located on the property, but the addition of the campsite will not interfere with the wetlands. The closest portion is 100 feet away. Therefore a Floodplain Development Permit is not required. The property will use existing drainage systems and grade that runs downhill on the property.

WETLAND STREAMS OUTLINED IN GRAY

.3 Will not conflict with or infringe upon the farm or forest uses in the area.

The surrounding farm and forest areas are FA-80 zoned, Forest/Agriculture district with a minimum lot or parcel size of 80 acres. This property has been a recreational use since at least 1959 and has coincided with farm lands. Over the years farming has diminished more and more in the area because of the increase in housing. The only potentially shared road is Hazen Road, a main road that is wide enough for all traffic. The farm lands around the property are primarily hay fields, which limits the harvest to a few times a year and the moving of equipment on the main road would be infrequent.

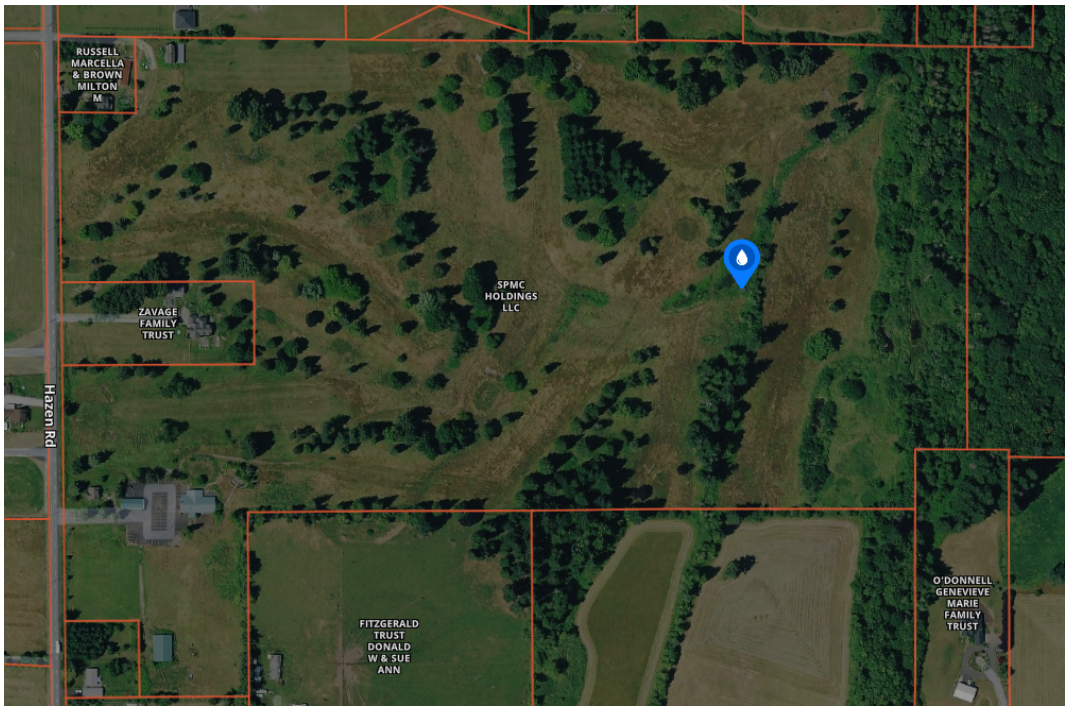
PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

The new campground facility will share the access point to the main road with the golf course that is already existing, and the road leading to the campground area is on this property and solely used for this purpose, which would not affect any neighboring lots. This 77 acre property is also mostly just empty space and land with a few buildings and parking.

.4 Will not require any public services other than those already existing or programmed for the area.

The proposal for the RV park/campground will need electricity and internet. The property does not require any additional public services than those already existing in the area. According to Columbia PUD, the already existing electricity is sufficient to supply the 100 RV spots, please see Appendix 23 for will-serve letter from the Columbia PUD.

This property will use existing ground water rights from well and McNulty Creek.



PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

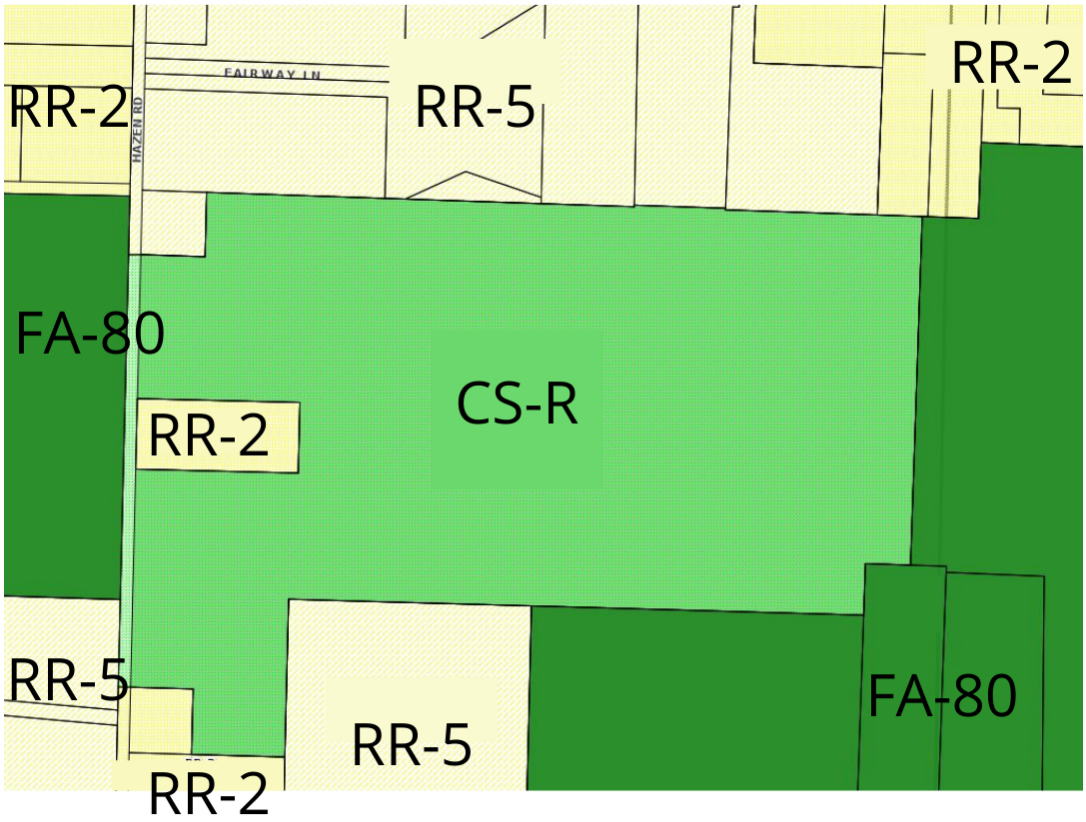
.5 Will not create any traffic hazards.

The proposed project will not create any traffic hazards. The design of the property will also include a buffer of plantings, about 8-10 feet of high density plants around RV's.

Overall Impact on Neighboring Properties

The surrounding properties around the proposed recreational campground include RR-5, Rural Residential with a minimum lot or parcel size of 5 acres, RR-2 Rural Residential with a minimum lot or parcel size of 2 acres and FA-80, Forest/Agriculture district with a minimum lot or parcel size of 80 acres. This translates to minimum residential structures nearby. As mentioned earlier, no small rural roads will be shared, only the main road, Hazen Road, which is already where the access point to the golf course is located, and where access to the new campsite will be.

SITE WITH ADJACENT PROPERTIES



PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

The proposal for the re-development is to turn this property into a destination golf and RV facility for both locals and visitors to the area. This development includes a campground bathroom with showers and laundry facility, a restaurant, banquet area, and lounge. The proposed private RV campground provides an additional revenue stream for the property, allowing it to be maintained at a higher standard.

To elevate the property, there will be a complete redesign of the entrance, parking lot, golf course plantings, and RV campground screening, as well as the addition of many Ironwood trees, indigenous to Oregon.

We have enlisted a renowned designer who has designed many well-known PGA courses, parks, RV parks, and other landscaping designs. The clubhouse, restaurant, lounge, and banquet building will be upgraded. After the property is upgraded, it will be more appealing to surrounding neighbors and the community, and will provide a beautiful destination for local events, weddings, and will be enhancing it's already existing presence in the community for the better. With the golf course, RV park, and other amenities in operation, this also provides a source of employment for many.

Our intention with the project is to upgrade the property to be an asset to the community and something that everyone can be proud of. It is also meant to be an additional source of revenue for the property, city, and county.

1026 Standards:

.1 There is no designated minimum lot or parcel size. The Commission shall review each proposal on a case by case basis and determine if the site is adequate for the proposed use. They shall review the site plan of the proposal and determine if the site meets all the provisions of this Ordinance, including the off-street parking requirements listed in Section 1400.

.2 There are no designated minimum setbacks in this district. The applicant shall submit a letter from the Fire Marshall concerning the necessary setbacks for safety. After reviewing this letter and the adjacent land uses, the Commission shall establish setback requirements for each individual site.

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

This proposal addresses the site use, off-street parking, and setbacks for The Commission to Review. More information regarding the site plan in Section 1550. Please see Appendix 10 for response from Columbia River Fire and Rescue.

1027 Signs: Signs shall meet the requirements of Section 1300 of this Ordinance.

Section 1300 SIGNS

1302 General Provisions

.1 Design Review

The proposed new sign and directional signage will be in adherence with these provisions.

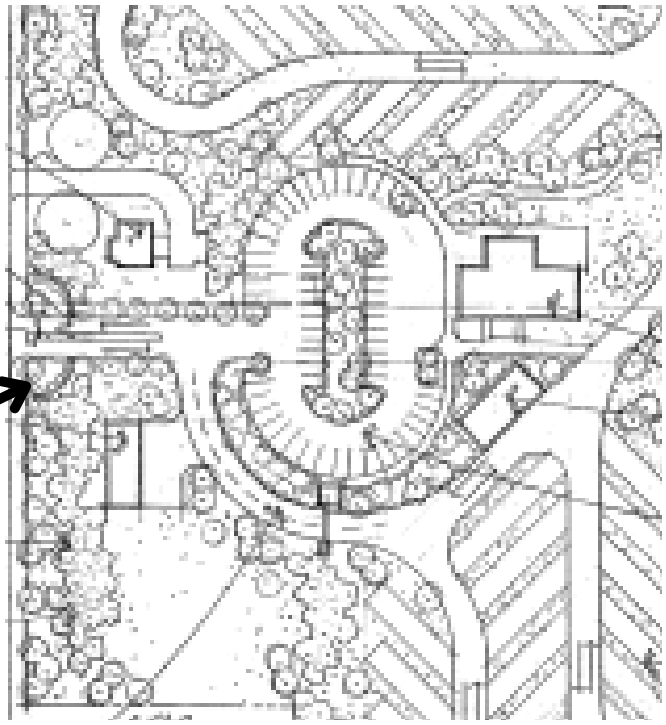
.2 Setbacks

A. All signs shall be situated in a manner so as not to adversely affect safety, corner vision, or other similar conditions and shall not overhang or encroach upon public rights of way.

No new sign location is being requested. The new sign will be installed in the same location as the current sign on the property off of Hazen Road. No interferences or hazards are currently known.

CURRENT SIGN & LOCATION

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE



B. Unless otherwise specified, all signs in residential zoning districts shall observe the yard setback requirements of the zoning district in which they are located.

The sign is located on a property in the CS-R Zone, Community Service Recreation, not residential.

C. No setbacks from property lines shall be required for signs in nonresidential zoning districts except that in all zoning districts, setbacks shall be required at corners as may be necessary to provide adequate corner vision or in cases where a sign is placed adjacent to a street, as provided is 1302.2(D), below.

D. Setbacks shall be required which comply with setback requirements of the abutting residential zoning district when a sign is placed on a parcel abutting a street (except Highway 30), which separates a non-residential parcel from a residential parcel or when a sign is placed on a property line separating a non-residential parcel from a residential parcel.

No new sign location is being requested. The old sign will simply be replaced by a new modern design off of Hazen Road. Sign will be placed on a street, Hazen Road, which does not separate this non-residential parcel from a residential parcel. Property on the other side of the road is FA/80, Forest/Agricultural.

.3 Visual Obstructions: No sign shall be situated in a manner which results in the complete visual obstruction of an existing sign.

New sign design will not interfere or be a visual obstruction of an existing sign.

.4 Illuminated Signs: Artificially illuminated signs, or lights used to indirectly illuminate signs, shall be placed, shielded, or deflected so as not to shine into residential dwelling units or structures. The light intensity of an illuminated sign shall not exceed the following standards.

The new proposed monument sign and directional signs will be properly illuminated according to code. More specifications of the lighting will be outlined when construction drawings are created. The closest neighboring structure to the sign is South, almost 400 feet away and is Rural Residential. Lighting of the sign will be directed toward the sign, not outward towards adjacent properties.

1313 Commercial and Industrial Districts:

.1 Signs Permitted: Signs shall be permitted in Commercial and Industrial zoning districts subject to the provisions of this Section, except to the extent such provisions conflict with the specific development standards for signs in the underlying zoning district.

.2 Limit on Sign Area: Except as otherwise permitted in Section 1302.5, no sign having a sign area greater than 200 square feet shall be permitted.

A new monument sign and directional signs will be added and will be smaller than 200 square feet.

.3 Aggregate Sign Area Per Parcel.

A. Except as otherwise provided herein, the maximum permitted area of all signs, including the total area of each face of a double-faced sign, or the sole face of a single faced sign for each parcel, is as follows: 40 square feet.

The proposed new modern monument sign will be no larger than 40 square feet on each face.

.4 Free Standing Signs: Free standing signs, including ground mounted signs,must comply with the following additional standards:

A. Height: Free standing signs shall not exceed 20 feet in height above grade or above road grade, whichever is higher.

B. Total Area: The total sign area of all freestanding signs allowed by this section plus the area of all other allowed signs on the parcel shall not exceed the aggregate sign limits for the parcel as provided in Section 1313.3.

D. Illumination: Free standing signs may be illuminated subject to subsection 1302.4.

The new property sign will be a freestanding sign located at the entrance to the property on Hazen Road where the existing monument sign is located. It will adhere to the size standards, which will be an area of no more than 40 square feet and will not exceed 20 feet in height above grade.

The sign will be illuminated based on code and the specifications of the lighting will be outlined in the construction drawings. The lighting will be strategically placed to minimize interference with neighbors.

.5 Building Mounted Signs:

The new proposed sign will be a freestanding sign, not a building mounted sign. No building mounted signs are requested at this time.

.6 Traffic Control/Directional Signs: On-site traffic control and directional identification signs shall be required as may be necessary, commensurate with the size and use of the site, in conjunction with site design review, if such review is required. Centers/ complexes combining several uses shall provide tenant directories, or building identification and directional signing oriented toward onsite vehicle and pedestrian circulation.

Directional signs will be installed for guiding vehicle and pedestrian circulation around the property.

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

.7 Temporary Signs

No temporary signs are requested at this time. If there is need for temporary signs in the future, we will request approval from Columbia County.

.8 Animated or Video Signs Prohibited

No animated or video signs are requested in this proposal.

DIRECTIONAL SIGN EXAMPLE

MONUMENT SIGN DESIGN IDEA WITH LOGO

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

Section 1400 OFF-STREET PARKING AND LOADING

1403 Use of Space:

.1 Required parking spaces shall be available for parking of vehicles of customers, occupants, and employees.

1405 Plans Required: A plot plan shall be submitted in duplicate to the Director with each application for a building permit or for a change of classification to OP. The plot plan shall include the following information:

.1 Dimensions of the parking lot. **The RV campsite parking spots are 20 feet wide and about 80 feet long. The golf course parking lot dimensions are about 160 feet by 240 feet. Please see both an example of an RV campsite and the re-designed Golf Course parking lot in Appendix 1 and 2.**

.2 Access to streets and location of curb cuts. **The property street, which connects all areas of the property, Golf Course and RV park, also has access to Hazen Road. Curb cuts will be located before each RV campsite parking, access to the pedestrian pathway, and access to all buildings. Refer to Appendix 3 for Access to Streets and Location of Curb Cuts.**

.3 Location of individual parking spaces. **Appendix 3 also shows the location of every parking space, RV and standard.**

.4 Circulation Pattern. **See Appendix 3 for the circulation of the street.**

.5 Grade and Drainage. **See Appendix 4 for the Drainage Plan Snapshot. Refer to Appendix 23 for Preliminary Stormwater Report and Drainage Plan.**

.6 Abutting Property. **Appendix 5 shows the subject property in relation to the adjacent properties.**

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

.7 A landscaping plan which shall include the location and names of all vegetation, and the location and size of fencing or other screening material. **See Appendix 6 for the Landscaping Plan. The proposed plant list for Screen/Buffer Plantings includes Vine Maple, Pacific Serviceberry, Incense Cedar, Oregon Ash, Douglas Fir, Western Red Cedar for trees, and Salal, Oceanspray, Tall Oregon Grape, Pacific Wax Myrtle, Pacific Coast Ninebark, Pink Flowering Currant, Nootka Rose, Western Spiraea, and Snowberry for shrubs.**

No permit is being requested at this time, but here is our plan for parking. The golf course parking lot will be redesigned to include 59 parking spaces, a new entrance, road to the RV/campground area, and landscaping.

The proposed private RV/campground parking will be created with 103 RV parking spaces and each campsite will have an RV parking space, 12' by 46' and space for at least one standard car parking space, 9' by 18' feet.

1410 Size:

.1 The standard size of a parking space shall be 9 feet by 18 feet.
.2 Handicapped parking spaces shall be 12 feet by 18 feet.
.3 Parallel parking, the length of the parking space shall be increased to 22 feet.

Parking spaces in the newly designed golf course parking lot will be 9 feet by 18 feet and handicap spaces will be 12 feet by 18 feet. There is no parallel parking at the property. The RV parking spaces will be 12 feet by 46 feet and the car parking in each campsite will be 9 feet by 18 feet.

1411 Aisles: Aisles shall not be less than: .1 25'0" in width for 90 degree parking; .2 20'0" in width for 60 degree parking; .3 20'0" in width for 45 degree parking; and .4 12'0" in width for parallel parking. 1

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

The golf course parking lot will have aisles no less than 25' in width for the ease of access to parking stalls.

1412 Access: There shall be no more than one 45 foot wide curb cut driveway per 150 feet of street frontage, or fraction thereof, permitted per site.

The property has only one curb cut driveway to the main street, which is approximately 23 feet wide.

1413 Surfacing and Marking:

.1 The surfacing of each parking area shall meet minimum County standards to handle the weight of the vehicles which will use the parking area. All areas used for parking and maneuvering of vehicles shall be marked in accordance with the approved plan and such marking shall be continuously maintained. Handicapped parking spaces shall be marked with a wheelchair symbol.

.2 The parking and loading areas for commercial, industrial, or apartment uses shall be paved with concrete,asphaltic concrete, or another comparable surface.

The newly redesigned parking lot and the new RV/campground parking will conform to county standards regarding surfacing, marking, and striping. These details will be outlined in the construction drawings. Handicapped parking spaces will be properly marked.

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

1414 Drainage and Lighting: Adequate drainage shall be provided to dispose of the run-off generated by the impervious surface area to the parking area. The drainage system shall function so it will not adversely affect adjoining property. Artificial lighting shall be provided in such a manner as to insure the safety of the parking area without interfering with adjoining properties or creating traffic hazards on adjoining streets.

The existing parking lot has posed no drainage issues and artificial lighting exists around buildings. The construction drawings will address the drainage and lighting for the re-designed golf course parking lot and new RV parking areas.

Adequate lighting will be applied for the safety of people in all parking areas. The lighting will be strategically placed, as to not affect neighboring properties. The closest neighboring structure to the golf course parking lot is in an RR-2 zone area and is about 350 feet away. The closest structure to the RV/campground area is RR-5 and FA-80 and at the closest points are 100 feet away.

1415 Parking Areas: All parking areas, excluding one and two-family dwellings, shall meet the following requirements:

.1 All parking areas of less than 20 parking spaces shall have one handicapped parking space. Parking areas with more than 20 spaces shall provide one handicapped parking space for every 50 standard parking spaces.

The golf course parking lot will be redesigned to have 59 standard parking spaces, 2 of which will be designated handicapped parking. The private campground has 103 RV parking spaces, and each campsite has 1 standard parking space. There will be two campsites dedicated to handicapped parking, which will include an RV parking space and a standard parking space in each campsite.

.2 All parking areas shall be divided into bays of not more than 20 parking spaces. Between, and at the end of each parking bay, there shall be planters which have a minimum width of 5 feet and be at least 17 feet in length. Each planter shall contain one major structural tree and ground cover which has been deemed appropriate by the Director. Truck loading areas need not comply with the preceding requirements.

Parking areas will be divided in bays of no more than 20 parking spaces, with planters (minimum width of 5 feet and 17+ feet in length). Each planter will contain one major structural tree and ground cover.

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

.3 Parking areas shall be separated from the exterior wall of a structure, exclusive of paved pedestrian entrance ways, by a 5 foot strip of landscaping.

The golf course parking lot will be separated from the clubhouse and new golf shed by a 5 foot strip of landscaping. The RV parking campground will have at least a 5 foot strip of landscaping to separate from the bathroom structures.

.4 Industrial or commercial parking areas, in a residential or apartment district, shall meet the building setback of the most restrictive adjoining residential or apartment district.

Property is not located in a residential or apartment district.

.5 When industrial or commercial parking areas adjoin a residential or apartment district, there shall be a sight obscuring planting, which is at least 80 percent opaque and when viewed horizontally from between 2 and 8 feet above ground level. This planting shall be composed of materials which are an adequate size so as to achieve the required degree of screening within 12 months after installation.

The proposed parking areas at the property are not industrial or commercial parking. Landscaping will include screening and buffering from adjacent properties.

.6 Parking areas shall be set back from a lot or parcel line adjoining the street. The setback area shall be landscaped.

The proposed parking areas are not located right off of the adjoining street, Hazen Road. The new golf course parking lot will be in the same location as the current one, which is set back about 185 feet from Hazen Road. The setback area is already landscaped, but the new entrance design does include lots of new plantings. The new RV/campground parking is not right off of Hazen Road.

.7 All parking area setbacks shall be landscaped with major trees, shrubs, and ground cover as approved by the Director.

The setbacks between buildings, parking areas, and lot lines will be landscaped to include approved major trees, shrubs, and ground cover.

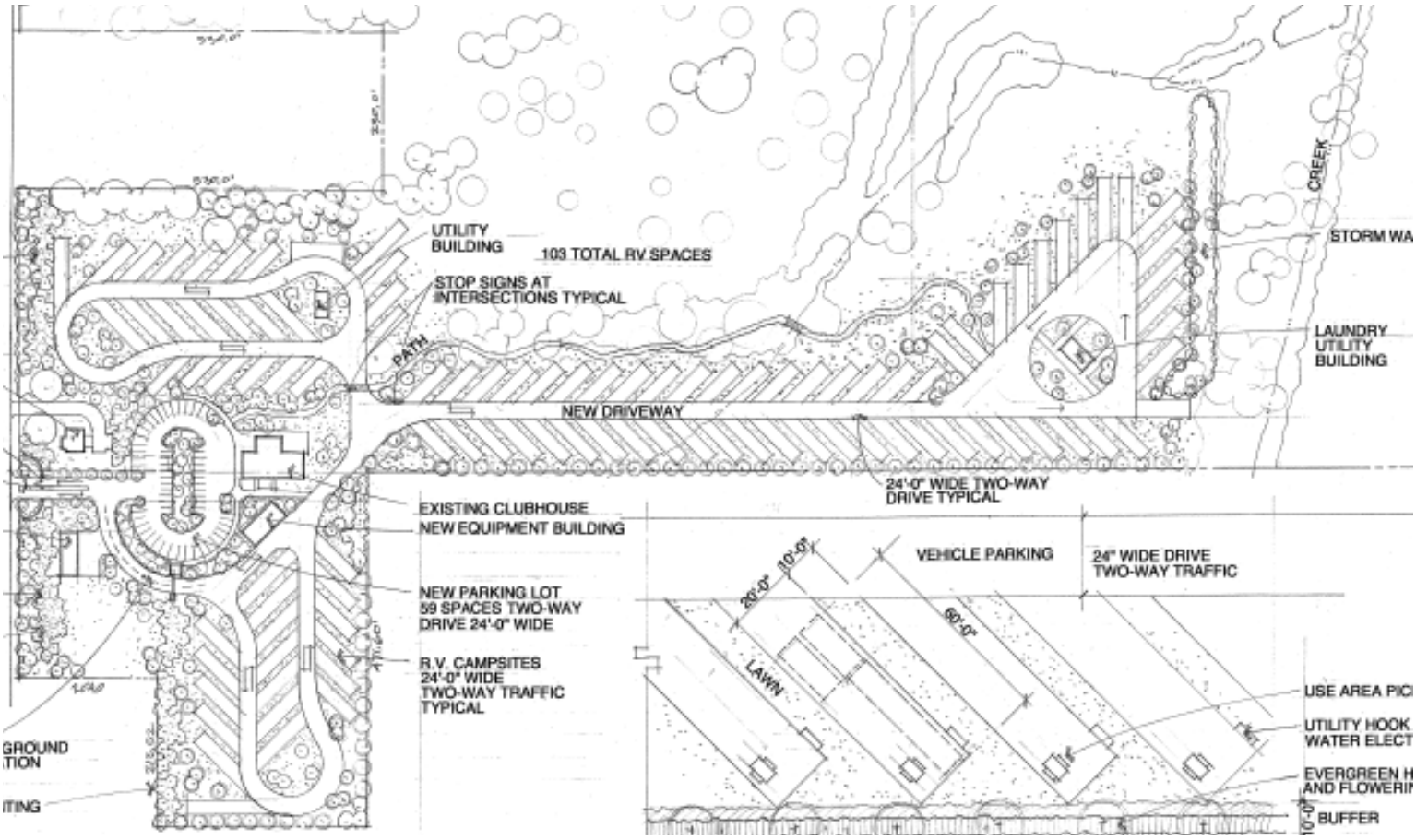
PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

.8 A minimum of 10 percent of the parking area shall be landscaped and maintenance of the landscaping shall be the owner's responsibility.

Plantings and buffer landscaping will be all around the proposed parking areas and buildings and the landscaping will be maintained.

.9 Internal pedestrian connections shall be provided in parking lots with greater than ten (10) parking spaces. These connections shall be a minimum of five (5) feet wide and distinguished from vehicular areas through changes in elevation or contrasting paving materials (such as light-color concrete inlay between asphalt). Paint or thermo-plastic striping and similar types of nonpermanent applications may be approved for crossings of parking lot areas that do not exceed 24 feet in crossing length.

A pedestrian pathway, approximately 5 feet wide, will be created along the campground perimeter, leading back to the campground and golf course parking lot. There will be a curb and plantings separating the sidewalk from the street.

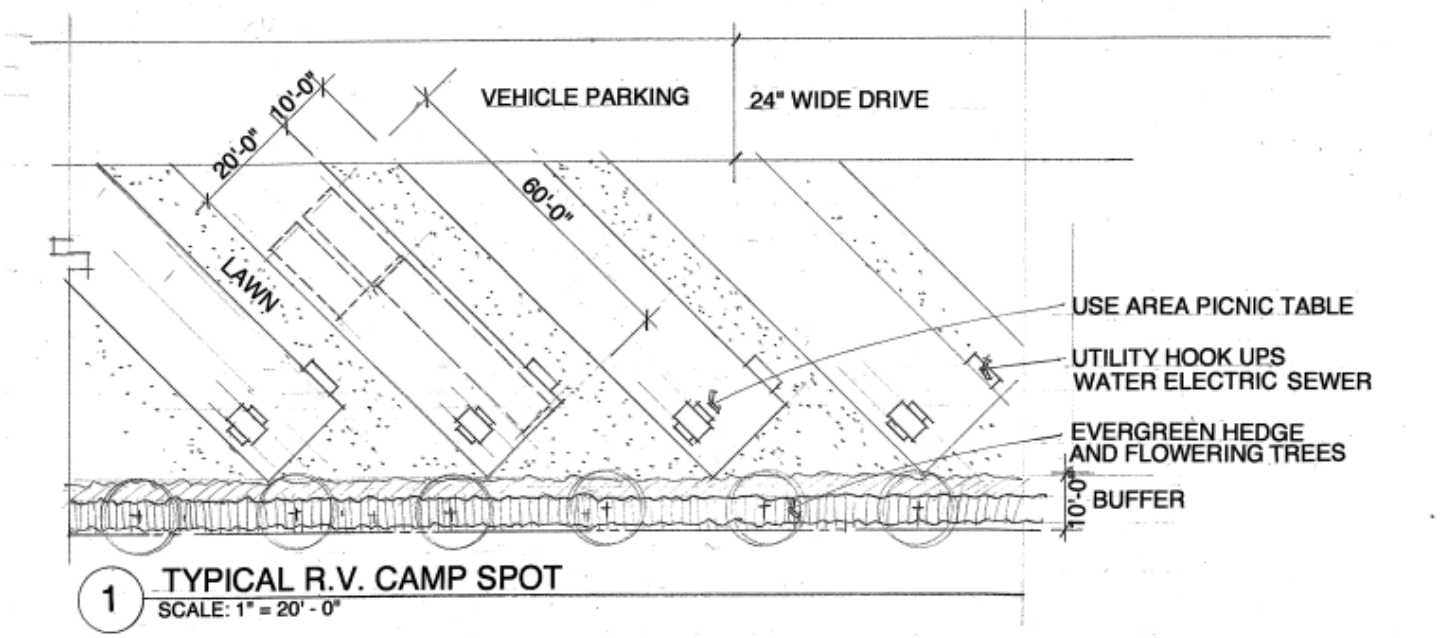


PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

1417 Unspecified Uses: Any use not specifically listed in the foregoing list shall have the requirements of the listed use or uses deemed equivalent by the Director.

The minimum number of parking spaces for a public/private campground facility are not addressed in Section 1400, but will be required to have at least two parking spaces per established campsite.

The proposed private campground facility will have 2 parking spaces per campsite, 1 standard parking space and 1 RV parking space.



PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

Section 1450 TRANSPORTATION IMPACT ANALYSIS

1450 Transportation Impact Analysis: A Transportation Impact Analysis (TIA) must be submitted with a land use application if the proposal is expected to involve one or more of the conditions in 1450.1 (below) in order to minimize impacts on and protect transportation facilities, consistent with Section 660-012-0045(2)(b) and (e) of the State Transportation Planning Rule.

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

Section 1550 SITE DESIGN REVIEW

The Site Design Review process shall apply to all new development, redevelopment, expansion, or improvement of all community, governmental, institutional, commercial, industrial and multi-family residential (4 or more units) uses in the County.

1551. Types of Site Design Review:

B. Type 2: Projects, developments and building expansions which meet any of the following criteria: 1. have an area of 5,000 sq.ft. or more, or are 10% or more of the square footage of an existing structure.

1555 Submittal documents: The following documents, when applicable, are required for a Site Design Review. The scope of the drawings and documents to be included will be determined at the pre application conference by the Pre-application Conference Committee, and a Site Design Review Submittal Checklist will be given to the applicant, documenting which items are deemed not applicable or not necessary to determine compliance with County and State standards, with a short explanation given for each item so determined.

A. History.

The golf course, formally known as St. Helens Golf Course, opened in 1959 by The Johnson Family. The golf course was a popular 9-hole course that was also a lively center for community activities and was a popular hot spot. The course changed ownership many times and was not able to be properly maintained and updated. Hand in hand with this is the lack of ability to keep it a destination for all with events, live music, and more which made it a desirable place for both visitors and locals.

B. Project narrative.

The property has operated as a golf course with clubhouse, restaurant, bar, and banquet facility since 1959. It has been owned and operated by many different people throughout the years. The course was closed in the winter of 2019, most likely due to inconsistent revenue streams, lack of upkeep, and restaurant and bar openings and closures.

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

Our proposal includes many changes and improvements to the golf course as a whole, but the addition of a campground/RV area provides an additional revenue stream for the property. The new private campground/RV along with the re-design and elevation of the property will create a year long, sustainable business model. The proposed addition of private RV spaces is meant to enhance the property and the surrounding area.

The proposed RV spaces will be full hookup, which will provide electricity, water, garbage, internet, and sewage disposal supported by an on-site septic system. The access point will remain the same for the golf course and to access the new campground area. A new access point is requested for the existing residential home off of Hazen Road. This will create separate entrances for the home and for the golf course.

An RV campground provides additional cash flow stabilizing the property while allowing for it to be maintained to a higher standard. This additional revenue allows the property to be renovated and elevated, making it a destination campground. To accomplish elevating the property, we have contracted with one of the designers of Stub Stewart State Park. He will be responsible for a complete redesign of the entrance, parking lot, golf course plantings, and RV campground screening. This includes a landscaping plan with many natural plantings to the area, including Ironwood trees, which are indigenous to Oregon. He brings experience and expertise to the redesign of the property, while incorporating RV campground sites seamlessly. He has also helped in the landscape design of a few well-known PGA courses.

The clubhouse, restaurant, lounge, and banquet building will be upgraded to attract and make people feel comfortable. The RV campground hookups are positioned along the southeast and south property line and are fully screened abutting an RR-5 parcel and two FA 80 zoned parcels. This area does not interfere with the golf course and is easily screened for our neighbors.

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

C. Existing site plan. **See Appendix 12 for existing site plan.**

D. Proposed site plan. **See Appendix 19 for proposed site plan.**

E. Grading plan. **See Appendix 25.**

F. Drainage plan. **See Appendix 25.**

G. Wetland mitigation plan. Goal 5 Resource Protection Plans (streams, wetlands, riparian areas, natural areas, fish and wildlife habitat). Indicate how the project will protect streams, wetlands, riparian areas, natural areas, and fish and wildlife habitat from negative impacts.

The proposed private campground/RV facility is not located in the floodplain. RV park will not be located on major wetlands. R4SBC and PUBHx are located on the property, but the addition of the campsite will not interfere with the wetlands. The closest portion is 100ft away. See Appendix 14.

H. Landscaping Plan

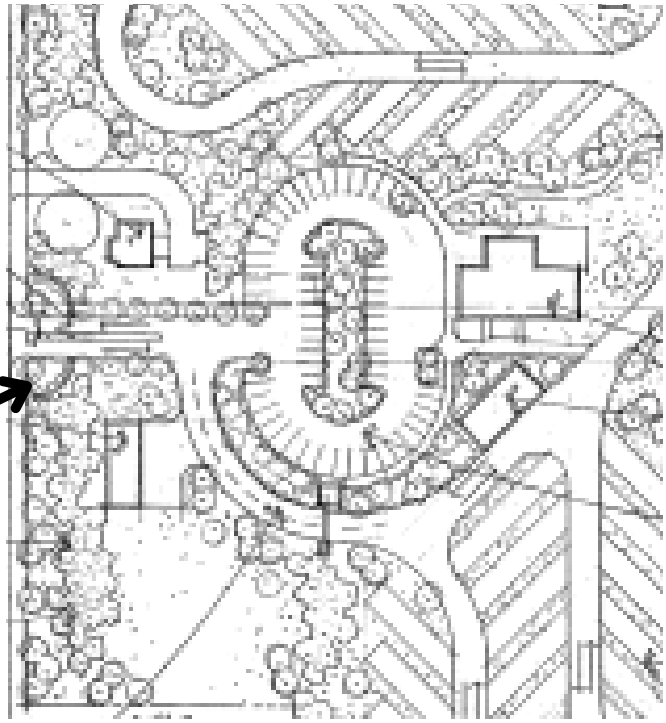
See Appendix 6 for the Landscaping Plan. The proposed plant list for Screen/Buffer Plantings includes Vine Maple, Pacific Serviceberry, Incense Cedar, Oregon Ash, Douglas Fir, Western Red Cedar for trees, and Salal, Oceanspray, Tall Oregon Grape, Pacific Wax Myrtle, Pacific Coast Ninebark, Pink Flowering Currant, Nootka Rose, Western Spiraea, and Snowberry for shrubs.

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

I. Architectural Plans

There are no architectural plans at this time.

J. Sign Drawings



PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

K. Access, parking and circulation plan. **See Appendix 19.**

L. Impact assessment.

M. Site Design Review Submittal Checklist

<u>1560 Existing Site Plan:</u>

1. A vicinity map **See Appendix 12.**
2. Site Description Map **See Appendix 13.**
    a. **Contour Lines**
    b. **In special areas, a detailed slope analysis may be required.**
3. Potential natural hazard areas, including potential flood or high ground water, landslide, erosion, and drainage ways. **See Appendix 14.**
4. Wetland areas, springs, wildlife habitat areas, wooded areas, and surface features such as mounds and large rock outcroppings. **See Appendix 14.**
5. Streams and stream corridors. **See Appendix 14.**
6. Location, species and size of existing trees proposed to be removed. Existing landscaping in the proposed areas include small trees, tall grass, and blackberry bushes. **Appendix 15 shows the existing site with existing trees and vegetation.**
7. Significant noise sources. **The activities of this property will not create any significant or consistent noise.**
8. Existing structures, improvements, utilities, easements and other development. The existing structures include a clubhouse, residence, golf cart storage shed, and other equipment storage building. **See Appendix 16, 17.**
9. Adjacent property structures and/or uses. **See Appendix 18.**

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

1561 Proposed Site Plan

A. Site Plan

1. The applicant's entire property and the surrounding area to a distance sufficient to determine the relationships between the applicant's property and proposed development and adjacent properties and developments. **See Appendix 19.**

2. Boundary lines and dimensions of the property and all proposed property lines. Future buildings in phased development shall be indicated. **See Appendix 20.**

3. Identification information, including names and addresses of project designers.
Developer: OHM Equity Partners LLC
Drainage Plan Designer: DL Consulting
Landscaping Plan Designer: Brian Bainnson with Quatrefoil Inc.
Site Plan Designer: OHM Equity Partners LLC
Transportation Analysis Report Creator: Expert Transportation and Roadway Consulting
Wastewater Engineering: ADC Wastewater
Water Availability Consultant: McMullen Well Drilling Corp

4. Natural features which will be utilized in the site plan.
No major natural features of the property will be utilized in the site plan. See 16. Goal 5 Resource Protection Plan.

5. Location, dimensions and names of all existing or platted roads or other public ways, easements, and railroad rights-of-way on or adjacent to the property, city limits, section lines and corners, and monuments. **See Appendix 17.**

6. Location and dimensions of all existing structures, improvements, or utilities to remain, and structures to be removed, all drawn to scale. **See Appendix 16.**

7. Historic structures, as designated in the Comprehensive Plan.
There are no historic structures located on this property.

8. Approximate location and size of stormwater retention or detention facilities and storm drains. **See Appendix 25.**

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

9. Location and exterior dimensions of all proposed structures and impervious surfaces. **See Appendix 21.**

10. Location and dimension of parking and loading areas. pedestrian and bicycle circulation, and related access ways. Individual parking spaces shall be shown. **See Appendix 1, 2.**

11. Orientation of structures, showing entrances and exits. **See Appendix 21.**

12. All exterior lighting, showing type, height, wattage, and hours of use.
The property already has existing lighting that will be updated where needed to meet the requirements. Each campsite will have dim lighting for safety of parking and people during the night, but as not to interfere with neighboring campsites and neighboring properties. Specifics of lighting will be addressed in construction drawings. See Appendix 7 for location.

The property already has existing lighting that will be updated where needed to meet the requirements. Each campsite will have dim lighting for safety of parking and people during the night, but as not to interfere with neighboring campsites and neighboring properties. Specifics of lighting will be addressed in construction drawings.

Lights will be only used in the evening for safety purposes.

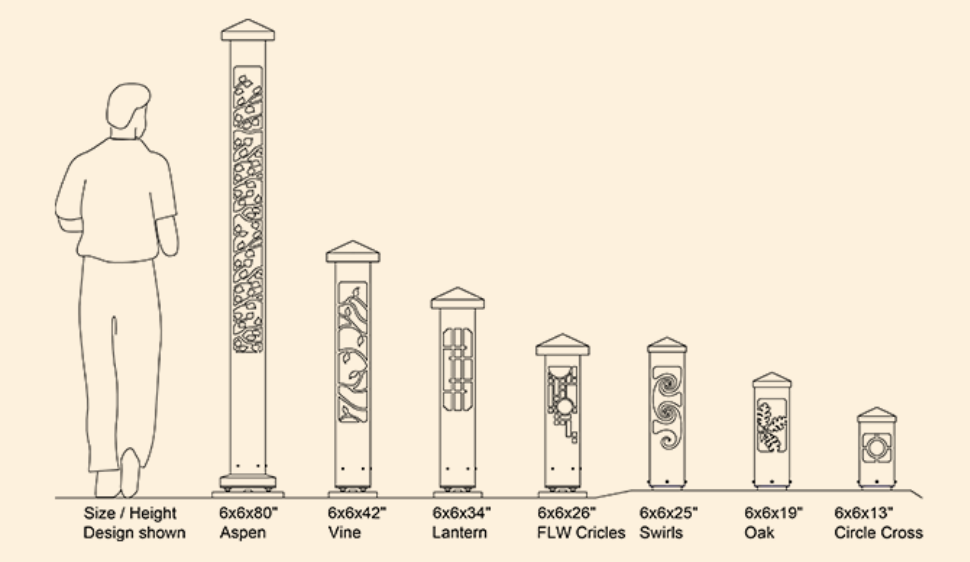
Examples of Pathway Lights for each campground

6x6x42" - 42 inches tall with 9 inch cap for lighting the entrances, along the road

6x6x19' - 19 inches tall with 6 inch cap for lighting each campsite

Brilliance LED 5 watt Pucks (2700K) mounted in the top of each 6×6 fixture

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE



13. Drainage, Stormwater and Erosion Control, including possible adverse effects on adjacent lands.
See Appendix 25.

14. Service areas for waste disposal and recycling. See Appendix 22.

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

15. Noise sources, with estimated hours of operation and decibel levels at the property boundaries.

Potential noise may occur from clubs hitting against balls, but that is assumed since the property has been a golf course since 1959. Golf playing time would be during daylight hours. There is no new equipment or lighting that would add extra noise to the property.

The restaurant and bar could be open for lunch and dinner times. The proposed RV/campsite facility will primarily welcome guests before dark or in daylight hours.

No anticipated noise issues, the activities of this property do not create any significant or consistent additional noise. The property is not located near a large housing development or anything like that. As previously stated, neighboring properties are Rural Residential and Farming Agriculture. The property use also does not include any manufacturing that would have the potential to make noise.

16. Goal 5 Resource Protection Plans. Indicate how the project will protect streams, wetlands, riparian areas, natural areas, and fish and wildlife habitat from negative impacts.

The proposed RV/campsite facility and the other re-designs of the property will only enhance the natural features of the property. The majority of the property is landscape and with the running of the golf course and campsite, the property will be properly maintained, and natural features protected, instead of the site being empty and closed with no control over who trespasses and causes damage.

The private campground addition is not proposed to be on a wetland or floodplain. New plantings and indigenous greenery will be added to incorporate this area seamlessly into the 77 acre beauty of the property. In some cases pavement will be removed and new grass will be planted. See Appendix 14.

17. A landscaping plan. **See Appendix 6.**

1. Grading Plans
2. Architectural Drawings
3. Signs

Monument sign to be 10’ by 4’, 48” from the bottom of the sign to the ground, materials will most likely be wood, metal, and\or stone, and will be illuminated by external flood lights. Finalization of the sign design will be made at a later time.

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

B. Grading Plans: A preliminary grading plan indicating where and to what extent grading will take place, including general contour lines, slope ratios, slope stabilization proposals, and natural resource protection proposals.

C. Architectural Drawings:

1. Building elevations and sections;
2. Building materials (color and type);
3. Floor plan.

There are no architectural drawings at this time, but the proposed new structures include the golf course storage building (24' by 60'), relocating the equipment storage building (50' by 3') and a bathroom facilities with showers and laundry (approx. 20' by 20').

D. Signs: (see also Zoning Ordinance Section 1300)

1. Freestanding sign:
a. Location of sign on site plan;
b. Elevation of sign (indicate size, total height, height between bottom of sign and ground, color, materials, and means of illumination).

Sign to be 10' by 4', 48" from the bottom of the sign to the ground, materials will most likely be wood, metal, and\or stone, and will be illuminated by external flood lights. Finalization of the sign design will be made at a later time.

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

CURRENT LOCATION

Sign Location

CURRENT LOCATION

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

1562 Landscaping: Buffering, Screening and Fencing: **Please see Appendix 6 for Landscaping Plan.**

A. General Provisions:

1. Existing plant materials on a site shall be protected to prevent erosion. Existing trees and shrubs may be used to meet landscaping requirements if no cutting or filling takes place within the dripline of the trees or shrubs.
2. All wooded areas, significant clumps or groves of trees, and specimen conifers, oaks or other large deciduous trees, shall be preserved or replaced by new plantings of similar size or character.

B. Buffering Requirements:
1. Buffering and/or screening are required to reduce the impacts on adjacent uses which are of a different type. When different uses are separated by a right of way, buffering, but not screening, may be required.
2. A buffer consists of an area within a required setback adjacent to a property line, having a width of up to 10 feet, except where the Planning Commission requires a greater width, and a length equal to the length of the property line adjacent to the abutting use or uses.
3. Buffer areas shall be limited to utilities, screening, pedestrian and bicycle paths, and landscaping. No buildings, roads, or parking areas shall be allowed in a buffer area.
4. The minimum improvements within a buffer area shall include:
a. One row of trees, or groupings of trees equivalent to one row of trees. At the time of planting, these trees shall not be less than 10 feet high for deciduous trees and 5 feet high for evergreen trees, measured from the ground to the top of the tree after planting. Spacing of trees at maturity shall be sufficient to provide a year-round buffer.
b. In addition, at least one 5-gallon shrub shall be planted for each 100 square feet of required buffer area.
c. The remaining area shall be planted in grass or ground cover, or spread with bark mulch or other appropriate ground cover (e.g. round rock). Pedestrian and bicycle paths are permitted in buffer areas.

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

C. Screening Requirements:

1. Where screening is required, the following standards shall apply in addition to those required for buffering:

a. A hedge of evergreen shrubs shall be planted which will form a four-foot high continuous screen within two years of planting; or, ..

b. An earthen berm planted with evergreen plant materials shall be provided which will form a continuous screen six feet in height within two years. The unplanted portion of the berm shall be planted in lawn, ground cover or bark mulch; or,

c. A five foot or taller fence or wall shall be constructed to provide a continuous sight obscuring screen. Fences and walls shall be constructed of any materials commonly used in the construction of fences and walls such as wood, brick, or other materials approved by the Director. Corrugated metal is not an acceptable fencing material. Chain link fences with slats may be used if combined with a continuous evergreen hedge.

2. When the new use is downhill from the adjoining zone or use being protected, the prescribed heights of required fences, walls, or landscape screening along the common property line shall be measured from the actual grade of the adjoining property at the common property line. This requirement may be waived by the adjacent property owner.

3. If four or more off-street parking spaces are required, off-street parking adjacent to a public road shall provide a minimum of four square feet of landscaping for each lineal foot of street frontage. Such landscaping shall consist of landscaped berms or shrubbery at least 4 feet in total height at maturity. Additionally, one tree shall be provided for each 50 lineal feet of street frontage or fraction thereof.

4. Landscaped parking areas may include special design features such as landscaped berms, decorative walls, and raised planters.

5. Loading areas, outside storage, and service facilities must be screened from adjoining properties.

D. Fences and Walls:

No fences or walls are included in the site design at this time.

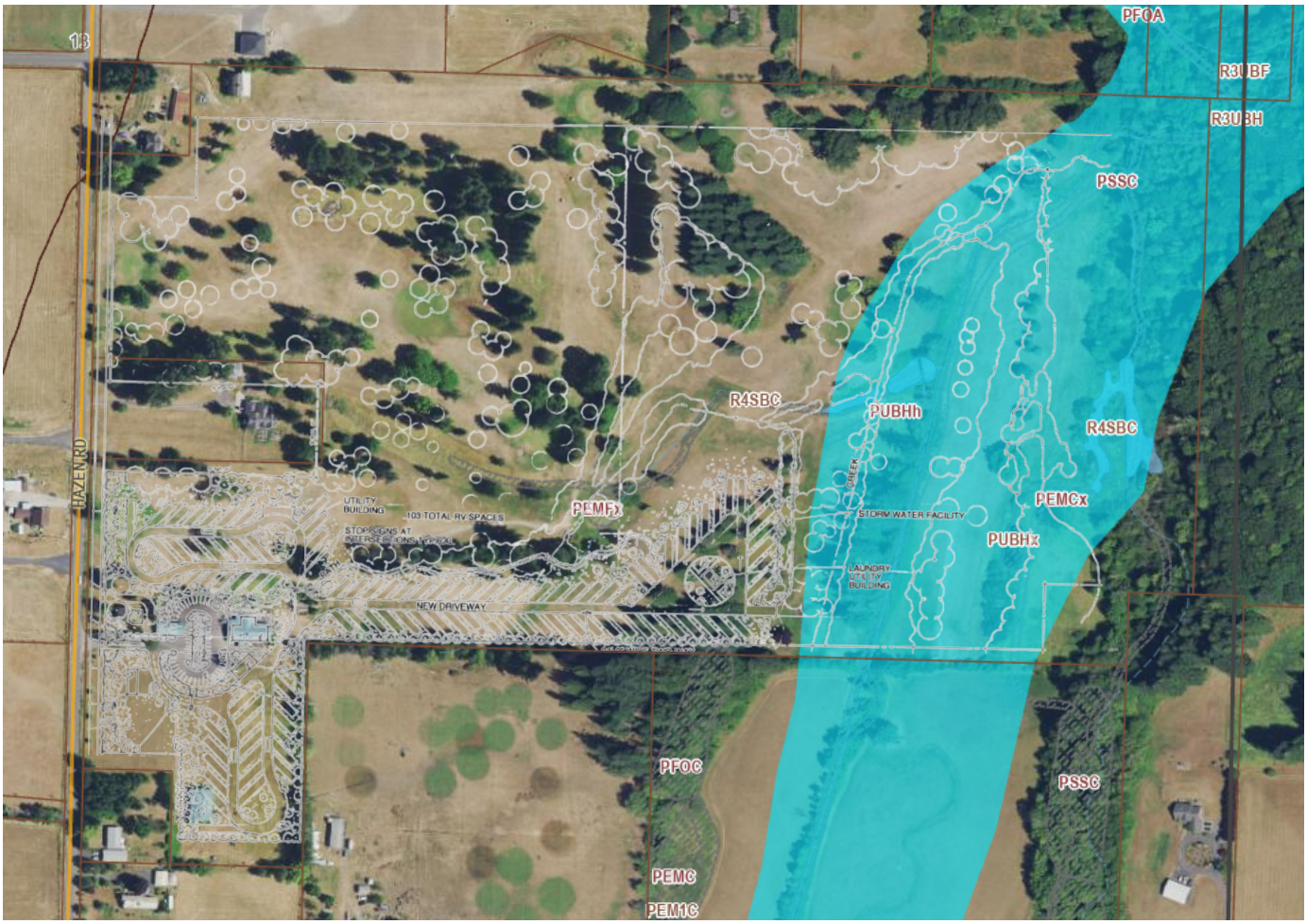
PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

1563 Standards for Approval: The Planning Commission or Director shall make a finding with respect to each of the following criteria when approving, approving with conditions, or denying an application:

A. Flood Hazard Areas: See CCZO §1100, Flood Hazard Overlay Zone. All development in Flood Hazard Areas must comply with State and Federal Guidelines.

The proposed campground addition is not located in the floodplain, all parts of the RV park are located at least 100 feet from the floodplain. Therefore a Floodplain Development Permit is not required. Property will use existing drainage systems and grade that runs downhill on the property.

MAP OF FLOODPLAIN:

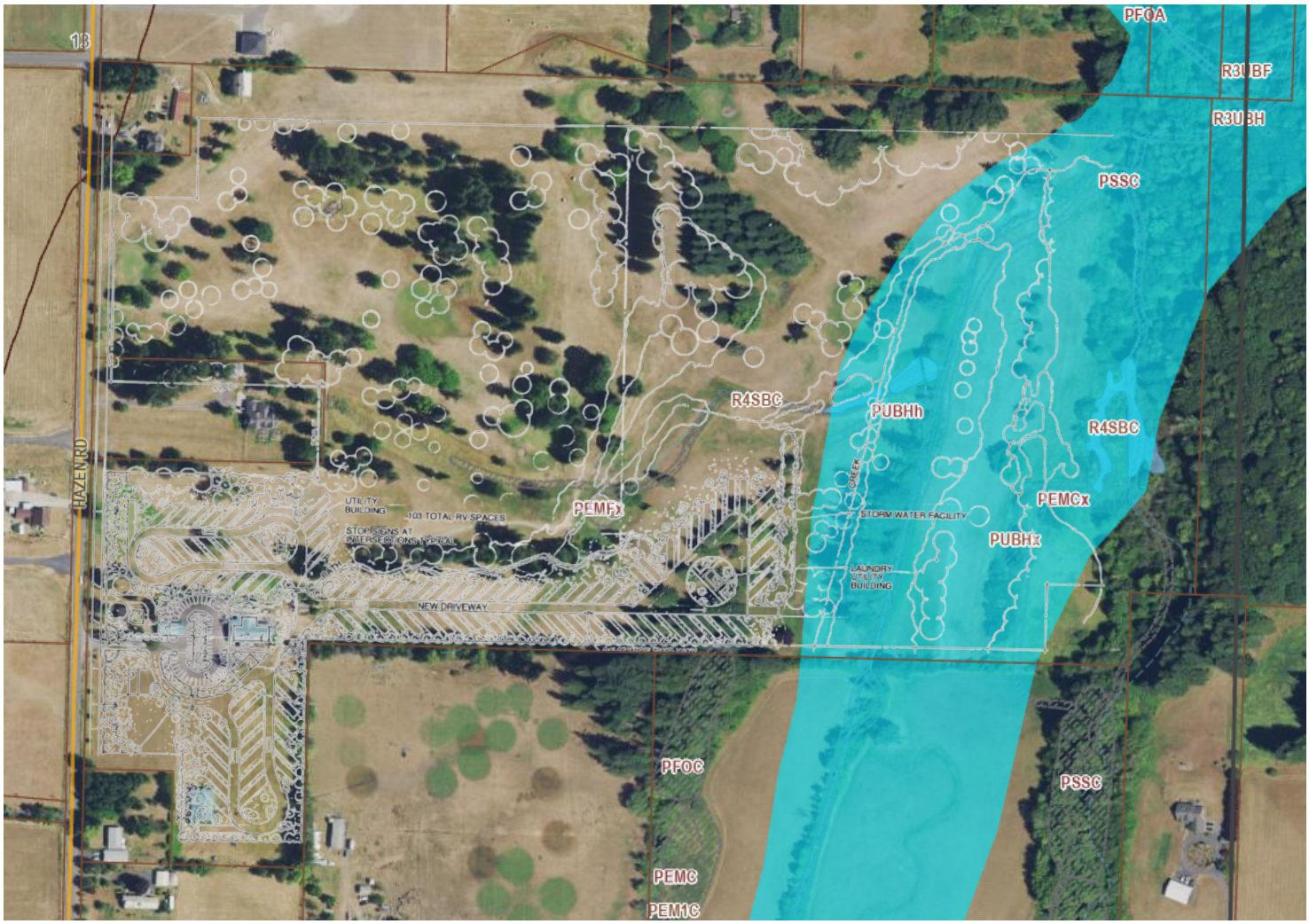


PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

B. Wetlands and Riparian Areas: Alteration of wetlands and riparian areas shall be in compliance with State and Federal laws.

The proposed campground addition will not be located on major wetlands. R4SBC and PUBHx are located on the property, but the addition of the campsite will not interfere with the wetlands. The closest portion is 100ft away.

WETLANDS ARE GREY SHADED AREAS



PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

C. Natural Areas and Features: To the greatest practical extent possible, natural areas and features of the site shall be preserved.

The proposed RV/campsite facility and the other re-designs of the property will only enhance the natural features of the property. The majority of the property is landscape and with the running of the golf course and campsite, the property will be properly maintained and natural features protected, instead of the site being empty and closed with no control over who trespasses and causes damage.

The private campground addition is not proposed to be on a wetland or floodplain. New plantings and indigenous greenery will be added to incorporate this area seamlessly into the 77 acre beauty of the property. In some cases pavement will be removed and new grass will be planted.

D. Historic and Cultural sites and structures: All historic and culturally significant sites and structures identified in the 1984 Comprehensive Plan, or identified for inclusion in the County Periodic Review, shall be protected if they still exist.

There are no historic and cultural sites and structures located on the property.

E. Lighting: All outdoor lights shall be shielded so as to not shine directly on adjacent properties and roads.

Specifications on lighting will be further outlined in construction drawings. All outdoor lights will face the property and not interfere with the adjacent properties.

F. Energy Conservation: Buildings should be oriented to take advantage of natural energy saving elements such as the sun, landscaping and landforms.

The only proposed buildings will be the new golf course storage building and a bathroom facility. Energy conservation will be taken into account with the future designs of these structures, for example which direction the building is facing for the most natural light.

G. Transportation Facilities: Off-site auto and pedestrian facilities may be required by the Planning Commission, Planning Director or Public Works Director consistent with the Columbia County Road Standards and the Columbia County Transportation Systems Plan.

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

1564 Final Site Plan Approval: If the Planning Director or Planning Commission approves a preliminary site plan, the applicant shall finalize all the site drawings and submit them to the Director for review. If the Director finds the final site plan conforms with the preliminary site plan, as approved by the Director of Planning Commission, the Director shall give approval to the final site plan. Minor differences between the preliminary site plan and the final site plan may be approved by the Director. These plans shall be attached to the building permit application and shall become a part of that permit.

Oregon Administrative Rules
A. 918-650-0045
General Construction Requirements

1. Combination Parks. The portions of combination parks which are dedicated to campground, organizational camp, picnic park, mobile home park or recreational vehicle park use must be identified and each use must comply with the applicable regulations. Jointly used areas must be designated accordingly. **The portion of the park that is dedicated to RV parking will be clearly marked and separated from the golf course portion of the park.**
2. Space Separation and Designation. Building or space separation and space designation must be as follows:
   a. The distance between buildings must be as required in the Oregon Structural Specialty Code; **All existing and proposed buildings are at least 20 feet from another building or have fire rated walls.**
   b. The distance between spaces must be as provided in OAR 918-650-0055;

918-650-0055 Special Rules for Overnight Campgrounds - (1) Spacing. Each camping space must be large enough to accommodate the designated class of recreational vehicle or tent and be located a minimum of ten feet from any other camping space, building or building appurtenance or any boundary line abutting upon a public street or highway, and five feet from any property line. The space area must be designed to minimize obstruction of any public or private roadway or walkway by vehicles or tents.

PROPOSED PRIVATE RV PARK/CAMPGROUND IN THE CS-R ZONE

Each RV campsite is approximately 20 feet wide, which accommodates an RV parking space and space for two standard cars to park. There is a 10 foot landscaping buffer in between campsites and a 10 foot landscaping buffer (evergreen hedge and flowering trees) from the property line. (See attached Appendix 1) Each RV camp space will be clearly marked by a number.

3. Access. Each space designed for vehicular use within a recreation park or organizational camp must have direct access to a park, street or road. The access may not be obstructed by grade or vertical clearance. The entrance to roads with impaired clearance just be provided with warning signs. **Each campground space has direct access to the new driveway/street proposed to be created within the property.**

4. Street Width. Park streets intended for use by the public must be adequate width to accommodate the planned parking and traffic load. Each traffic lane must be ten feet minimum width. Where parking is permitted on park streets, each parking lane must be ten feet minimum width. All two-way streets without parking must be 20 feet minimum width. **The proposed park street is a two-way street, 24 feet in width, 12 feet width in each traffic lane.**

5. Connection to a Public Way. **The park street system must have direct connection to a public way. The park street will connect to the existing entrance road, which connects to Hazen Road, a public way.**

6. Park Roads and Streets. **Roads and streets intended for use by the public must be designed for minimum nine-ton gross loads and streets and walkways must be well drained. The street surface may be asphaltic-concrete, poured cement concrete, crushed rock, gravel or other approved surface material. Park street is for private use on the golf course and campsites. Requirements for the materials and surfaces will meet the standards and will be addressed in the construction drawings.**

7. Cleanable Construction. **Fireplaces, fire pits or cooking facilities must be of cleanable construction and designed to permit easy removal of ash and other waste. At this time the proposal does not include fireplaces, firepits, or cooking facilities. If these items are to be included in the future, cleanable construction will be utilized.**

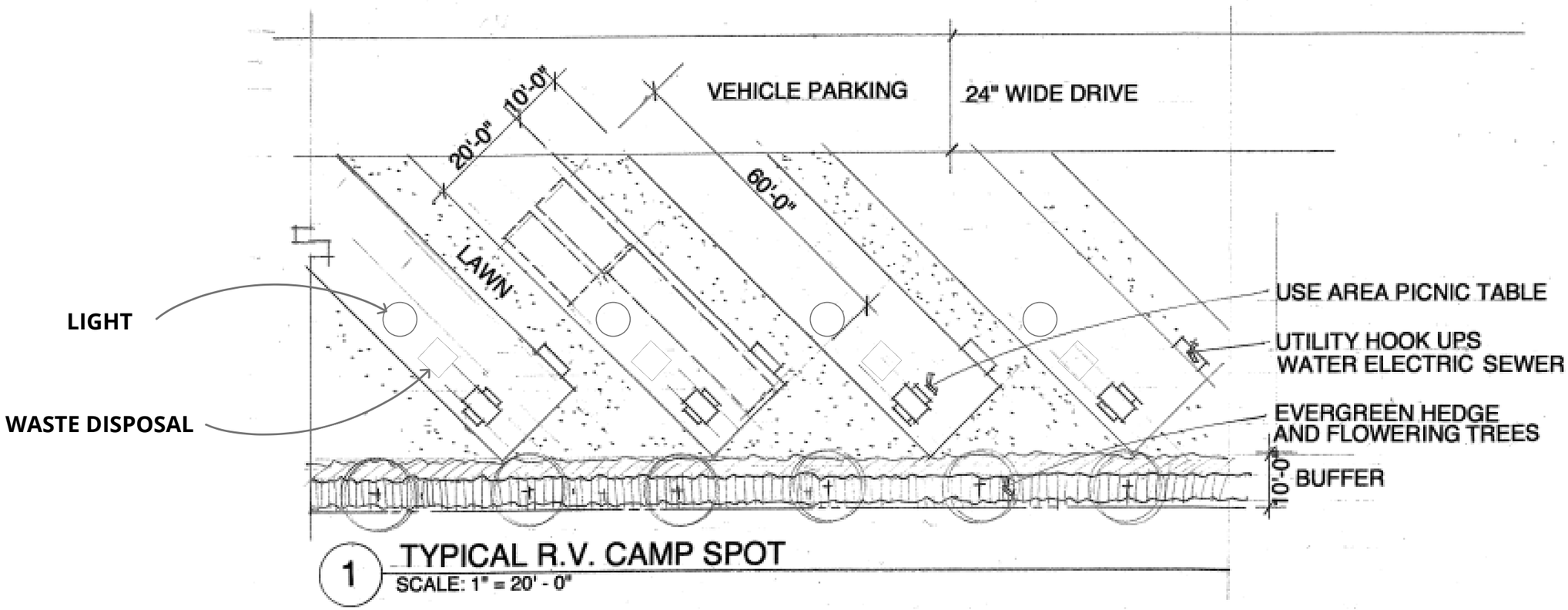
8. Screens. **All openings, except doors with self-closing devices, into the outer air of permanent kitchens, dining rooms, toilets and shower facilities must be effectively screened. Screens may not be less than sixteen mesh per inch, and all screen doors must be equipped with a self-closing device. Toilet and shower facilities will have doors with self-closing devices.**

9. Solid Waste Containers. **Solid waste containers must be in place at the time of final inspection. Solid waste containers or bins must:**
Have tight-fitting lids, covers or closable tops; and The waste containers will be durable, rust-resistant, water tight, rodent-proof and washable.
Be durable, rust-resistant, water tight, rodent-proof and washable; The waste containers will have tight-fitting lids, covers, or closable tops.
(A) Containers in recreational vehicle parks must be provided at a rate of one 30-gallon container for each four recreational vehicle parking spaces and be located within 300 feet of each recreational vehicle parking space. Containers may be grouped; 30 gallon waste containers will be placed every four recreational vehicle parking spaces, which are located within 300 feet of each parking space. In addition to waste containers every four parking spaces, there will be waste containers in and by the bathroom facilities, and in the picnic or lawn areas.

10. Water System in Flood Zones. **Potable water systems located in, or partially in flood zones, must be provided with valves to isolate that portion of the system in the flood zone from the rest of the system, and fittings must be installed to permit flushing and treatment of the flood zone portion of the water system. The proposed campground is not located in the floodplain, all parts of the RV park are located at least 100 feet from the floodplain. See Floodplain map in Appendix 14.**

RV Parking Spot Design

Appendix 1



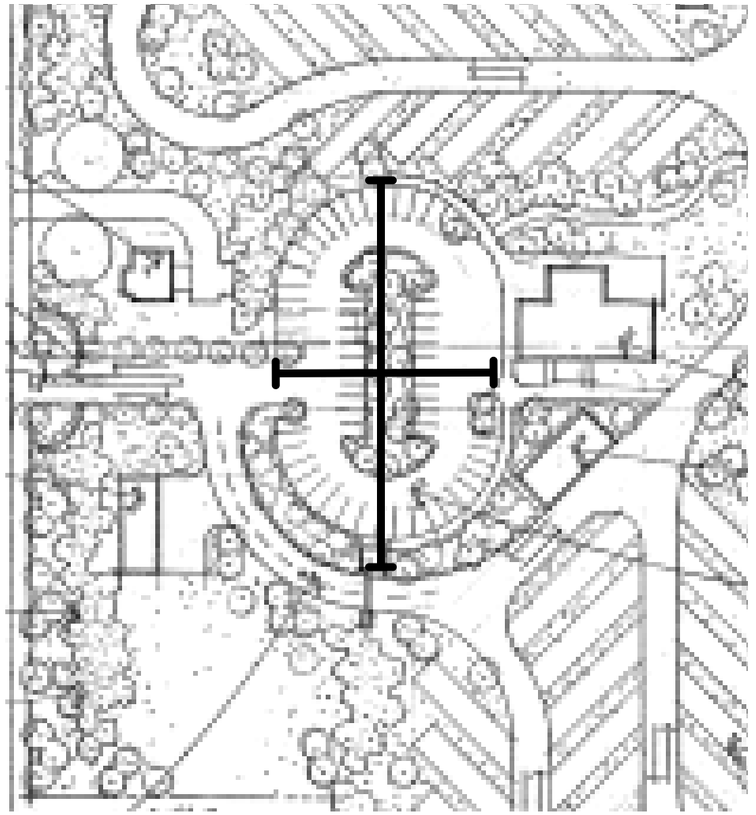
1 TYPICAL R.V. CAMP SPOT

SCALE: 1" = 20' - 0"

New Golf Course Parking Lot Dimensions

Appendix 2

About 160 Feet



About 240 Feet

CURB CUTS, ALSO LOCATED ON EVERY ENTRANCE TO CAMP/RV SPACE FROM DRIVEWAY

UTILITY BUILDING

103 TOTAL RV SPACES

STOP SIGNS AT INTERSECTIONS TYPICAL

PATH

NEW DRIVEWAY

CREEK

STORM WATER FACILITY

LAUNDRY UTILITY BUILDING

24'-0" WIDE TWO-WAY DRIVE TYPICAL

EXISTING CLUBHOUSE

NEW EQUIPMENT BUILDING

NEW PARKING LOT 59 SPACES TWO-WAY DRIVE 24'-0" WIDE

R.V. CAMPSITES 24'-0" WIDE TWO-WAY TRAFFIC TYPICAL

MPGROUND STATION

LANTING

VEHICLE PARKING

24' WIDE DRIVE TWO-WAY TRAFFIC

10'-0"

60'-0"

LAWN

USE AREA PICNIC TABLE

UTILITY HOOK UPS WATER ELECTRIC SEWER

EVERGREEN HEDGE AND FLOWERING TREES

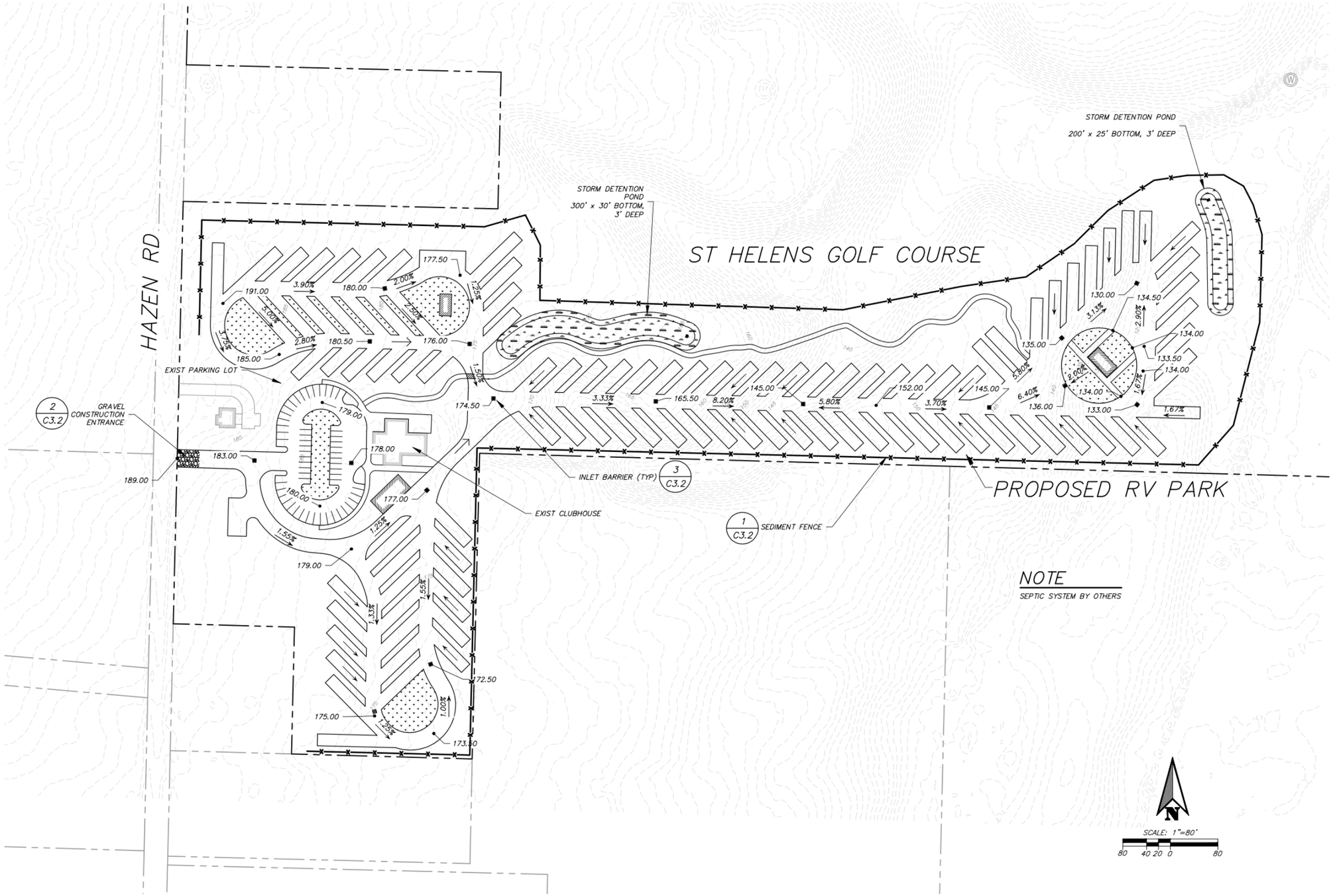
10'-0" BUFFER

PROPOSED PLANT
FOR SCREEN / BU

SCIENTIFIC NAME
TREES
ACER CIRCINATUM
AMELANCHIER ALNIFOL
CALOCEDRUS DECURR
FRAXINUS LATIFOLIA
PSEUDOTSUGA MENZIE
THUJA PLICATA
SHRUBS
GAULTHERIA SHALLON
HOLODISCUS DISCOLOR
MAHONIA AQUIFOLIUM
MYRICA CALIFORNICA
PHYSOCARPUS CAPITA
RIBES SANGUINEUM
ROSA NUTKANA

Grade & Drainage

Appendix 4

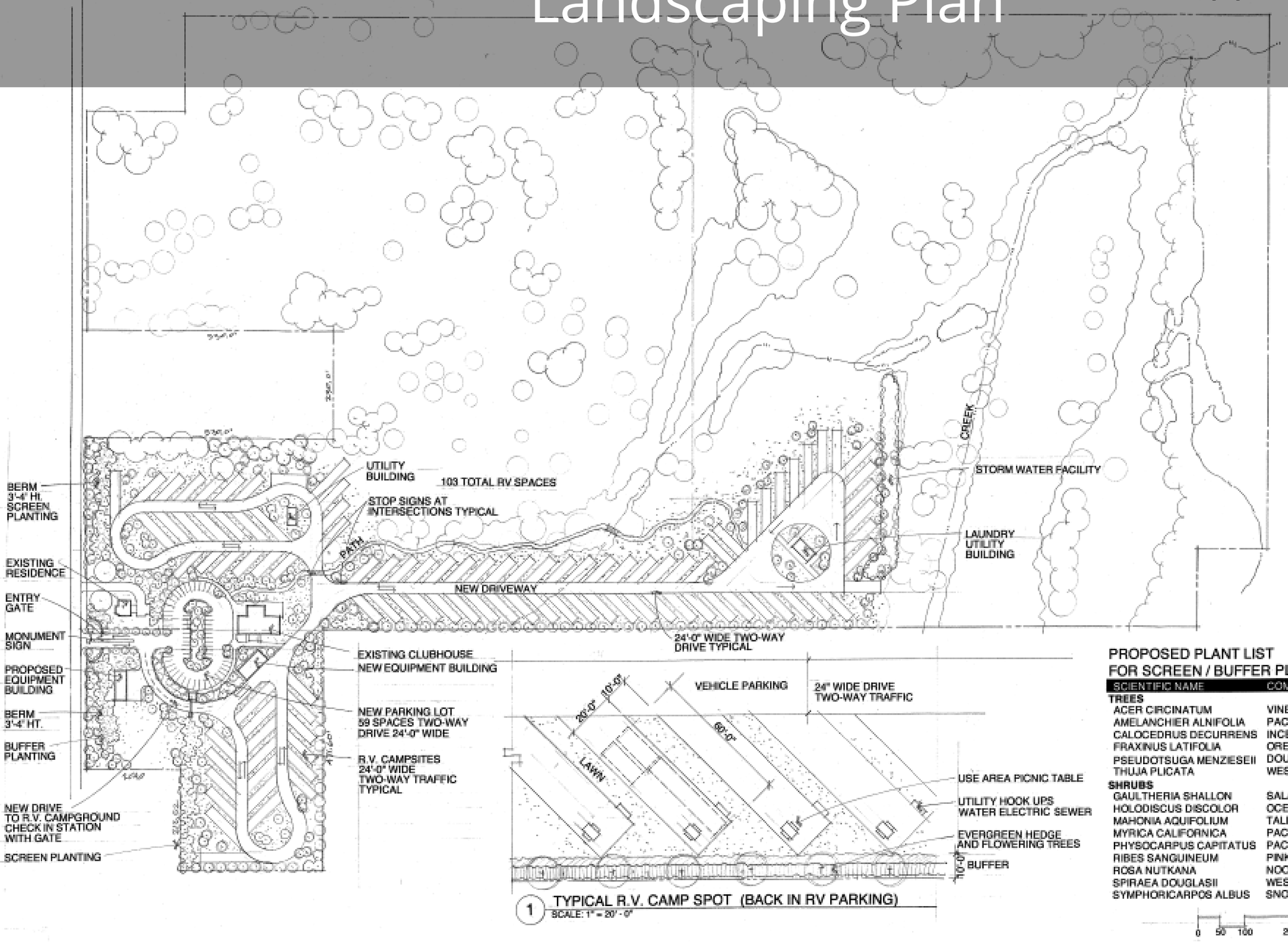


Appendix 5

Adjacent Properties & Uses

Landscaping Plan

Appendix 6



1 TYPICAL R.V. CAMP SPOT (BACK IN RV PARKING)
SCALE: 1" = 20' - 0"

PROPOSED PLANT LIST FOR SCREEN / BUFFER PLANTINGS

SCIENTIFIC NAME	COMMON NAME
TREES	
ACER CIRCINATUM	VINE MAPLE
AMELANCHIER ALNIFOLIA	PACIFIC SERVICEBERRY
CALOCEDRUS DECURRENS	INCENSE CEDAR
FRAXINUS LATIFOLIA	OREGON ASH
PSEUDOTSUGA MENZIESEII	DOUGLAS FIR
THUJA PLICATA	WESTERN RED CEDAR
SHRUBS	
GAULTHERIA SHALLON	SALAL
HOLODISCUS DISCOLOR	OCEANSPRAY
MAHONIA AQUIFOLIUM	TALL OREGON GRAPE
MYRICA CALIFORNICA	PACIFIC WAX MYRTLE
PHYSOCARPUS CAPITATUS	PACIFIC COAST NINEBARK
RIBES SANGUINEUM	PINK FLOWERING CURRANT
ROSA NUTKANA	NOOTKA ROSE
SPIRAEA DOUGLASII	WESTERN SPIRAEA
SYMPHORICARPOS ALBUS	SNOWBERRY

0 50 100 200 300 400

Quatrefoil, Inc.

REGISTERED LANDSCAPE ARCHITECT
852
BRIAN E. BANNISON
OREGON
07/26/1996

Saint Helen's Golf
Proposed R.V. Campground
and Clubhouse Site Improvements

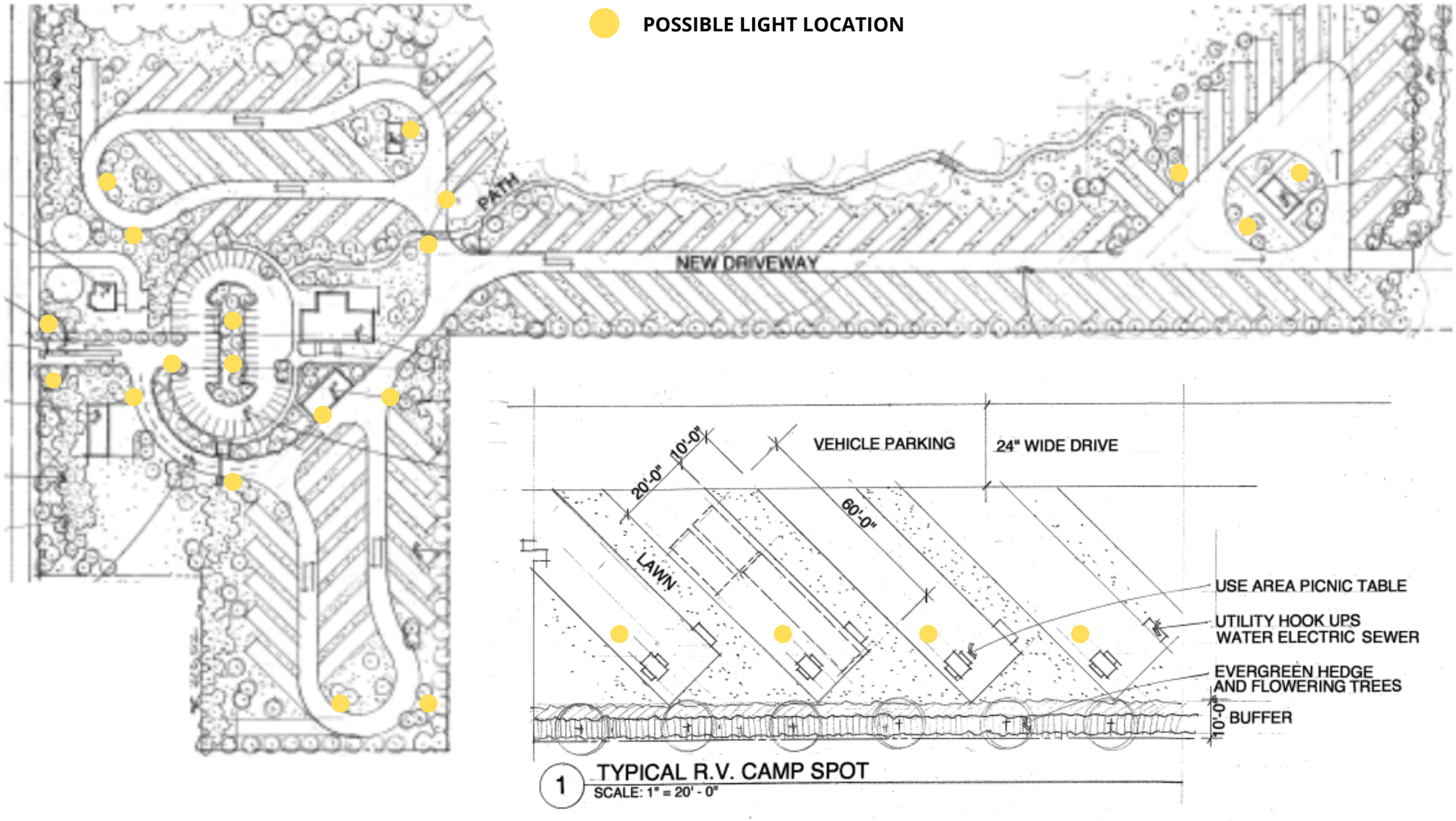
SITE PLAN

REVISIONS:

DATE: 4.27.2022
SCALE: 1" = 100' - 0"
SHEET: L.1

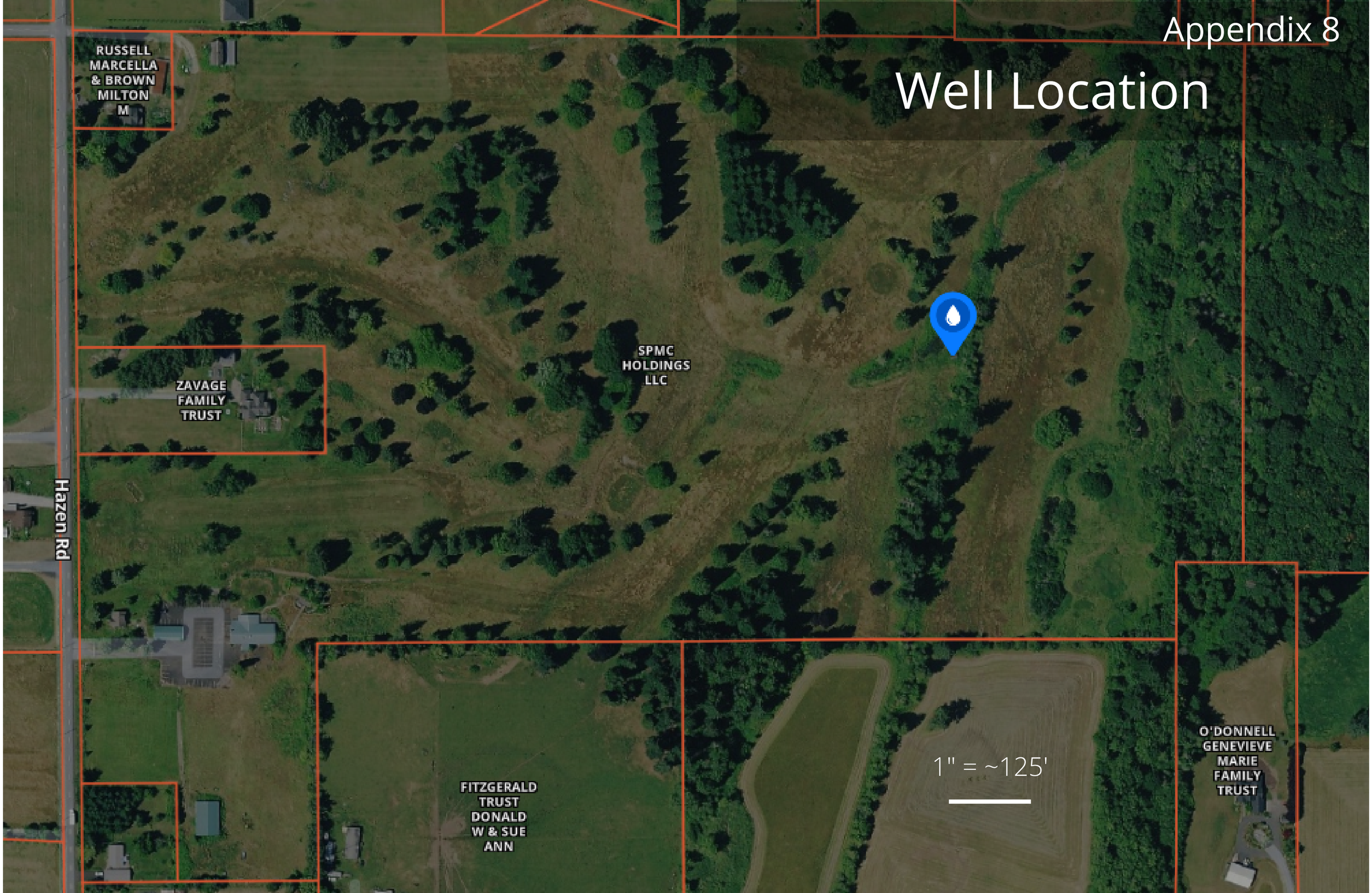
Lighting Plan

Appendix 7



Appendix 8

Well Location



Randolph Pedersen pedersenr@crfr.com via crfr0.onmicrosoft.com
to Suzie, me, Anika

Mon, Mar 7, 3:43 PM

Good afternoon,
Last week I spoke with Suzy Dahl, she is the Columbia County Building Official, I was attempting to determine what they were looking for, she informed me that this was something that should fall to her and not the fire service, she will be contacting you soon.
I have cc'd her in the email so she will see our conversation.
Tad

Randolph "Tad" Pedersen
Fire Marshal
Columbia River Fire & Rescue
270 Columbia Blvd.
St. Helens, OR 97051
Phone: 503-397-2990
Fax: 503-397-3198
Cell: 503-438-9878
pedersenr@crfr.com

Suzie Dahl
to Randolph, me

Mon, Mar 14, 12:00 PM

Arlina,

The Pre-Application for Planning and Zoning Site Design review was turned in last week.

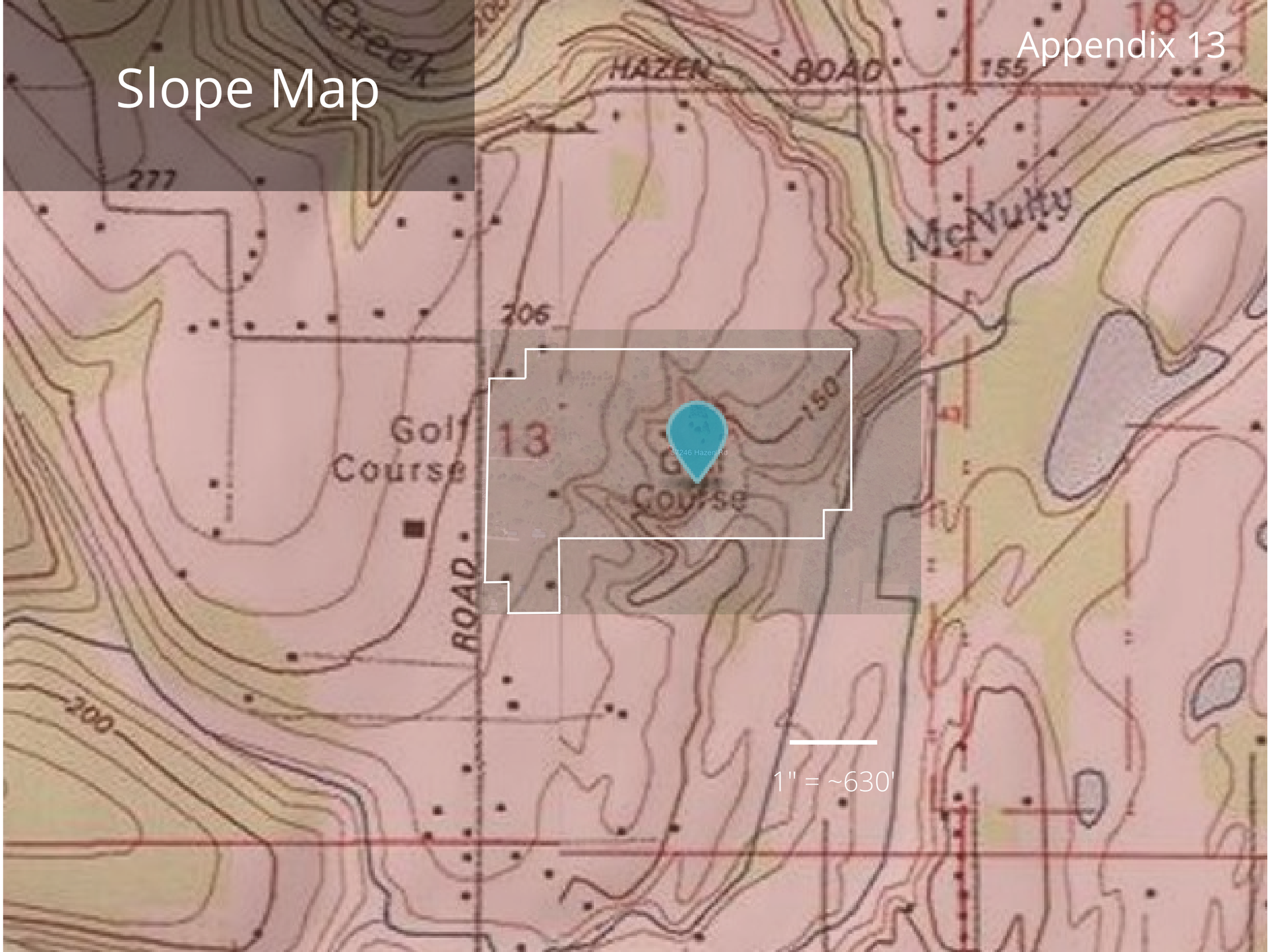
At this time, my comments will be basic for the Pre-App meeting regarding parks and setbacks; once the actual drawings for construction are submitted this will be under a complete plan review for RV site development at which time I will get the Fire Marshal involved in for any fire hydrants, access, etc.

Suzie Dahl
Building Official |Columbia County
230 Strand Street | St. Helens, OR 97051
(p) 503-397-7242 | (c) 503-369-0408
suzie.dahl@columbiacountyor.gov
www.columbiacountyor.gov


2,345'
210'
211'
Hazen Rd
528'
1,414'
233'
Golf Course
Approx. 77 acres
1,146'
148'
169'
1,882'
Hazen Rd
208'
512'
216'
310'
Existing Site
1" = ~125'

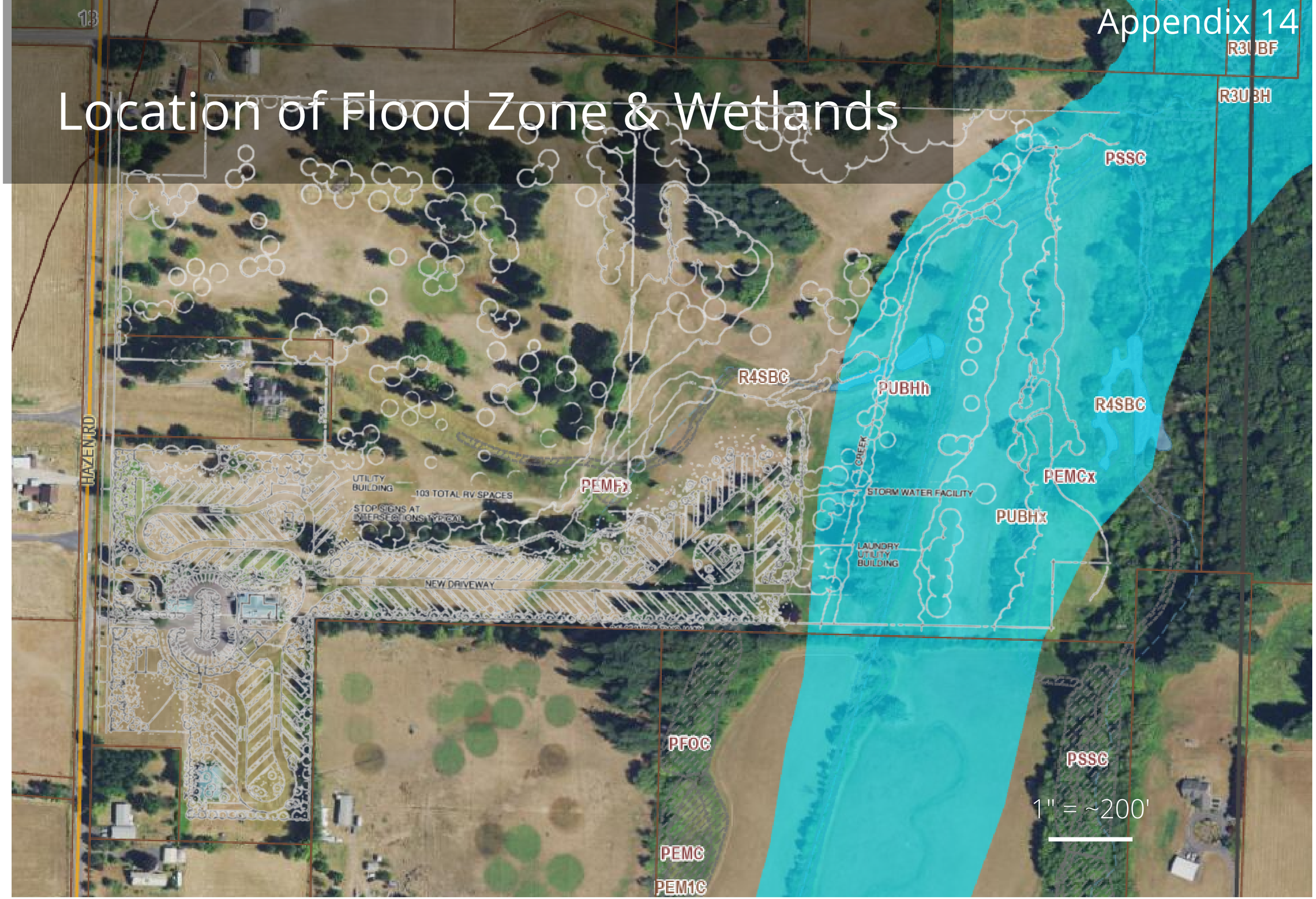
Slope Map

Appendix 13



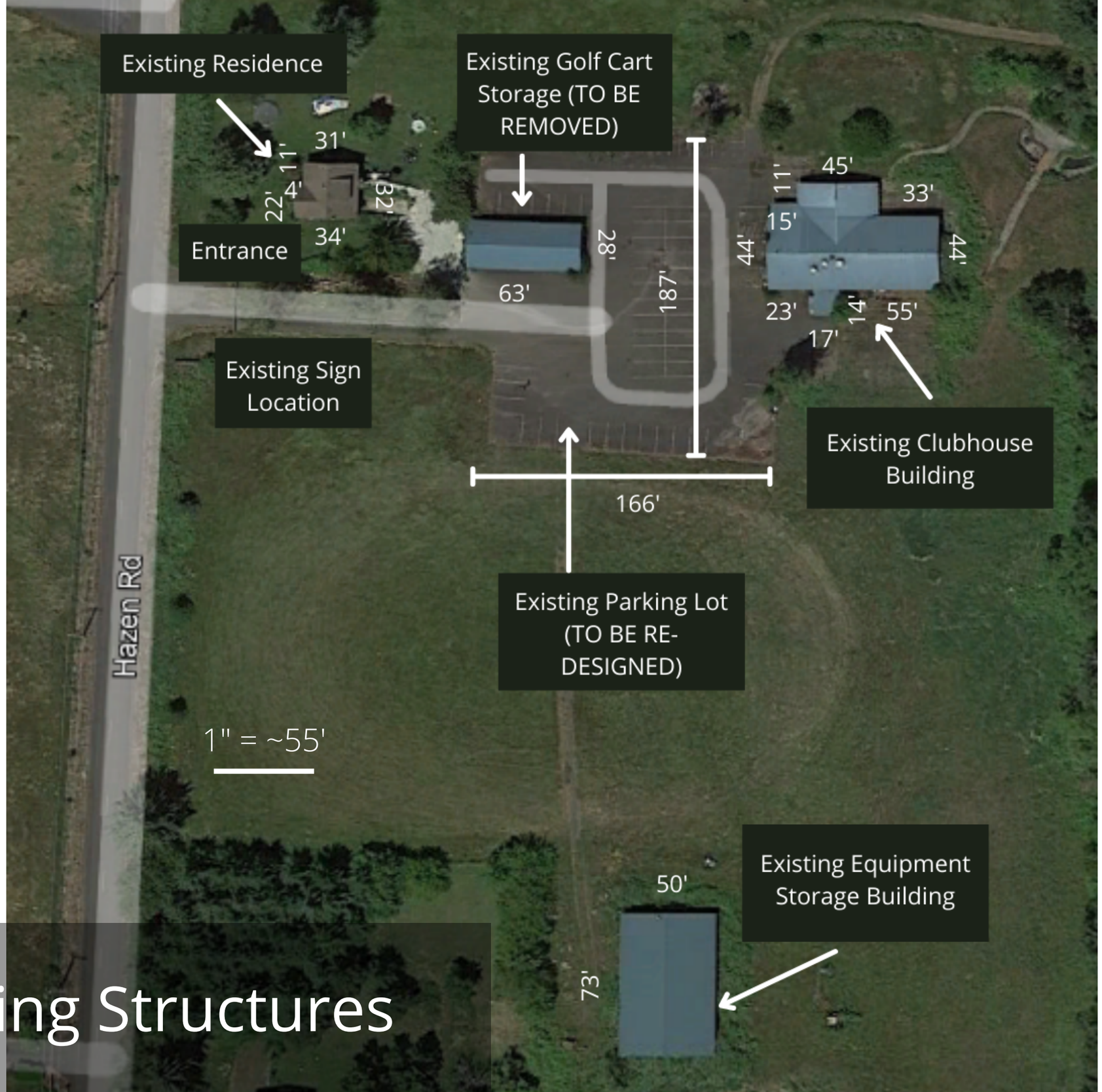
Appendix 14

Location of Flood Zone & Wetlands



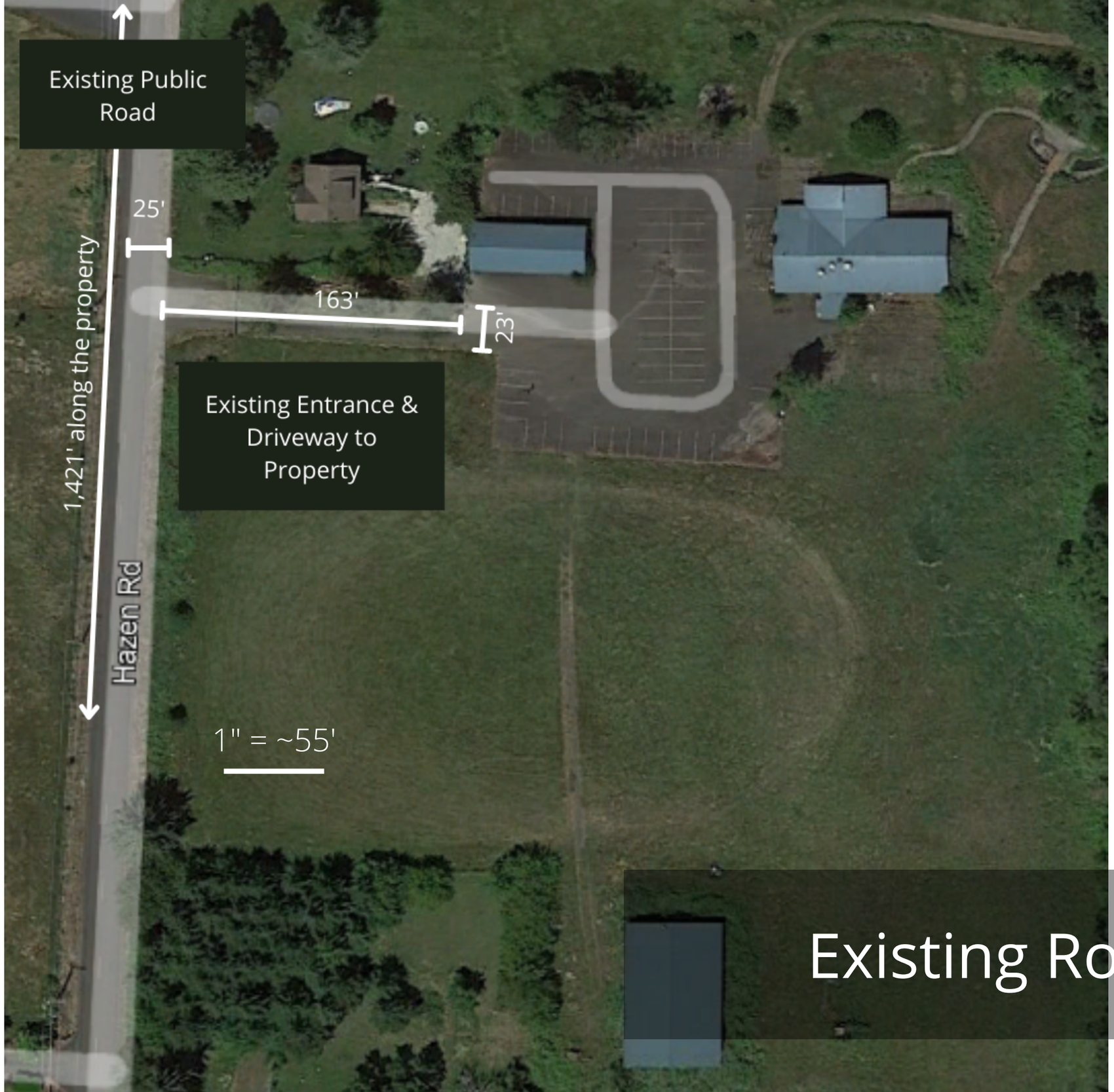

2,345'
210'
211'
Hazen Rd
528'
1,414'
233'
Golf Course
Approx. 77 acres
1,146'
148'
169'
1,882'
208'
512'
216'
310'
Location of Existing Trees
1" = ~125'

Appendix 16



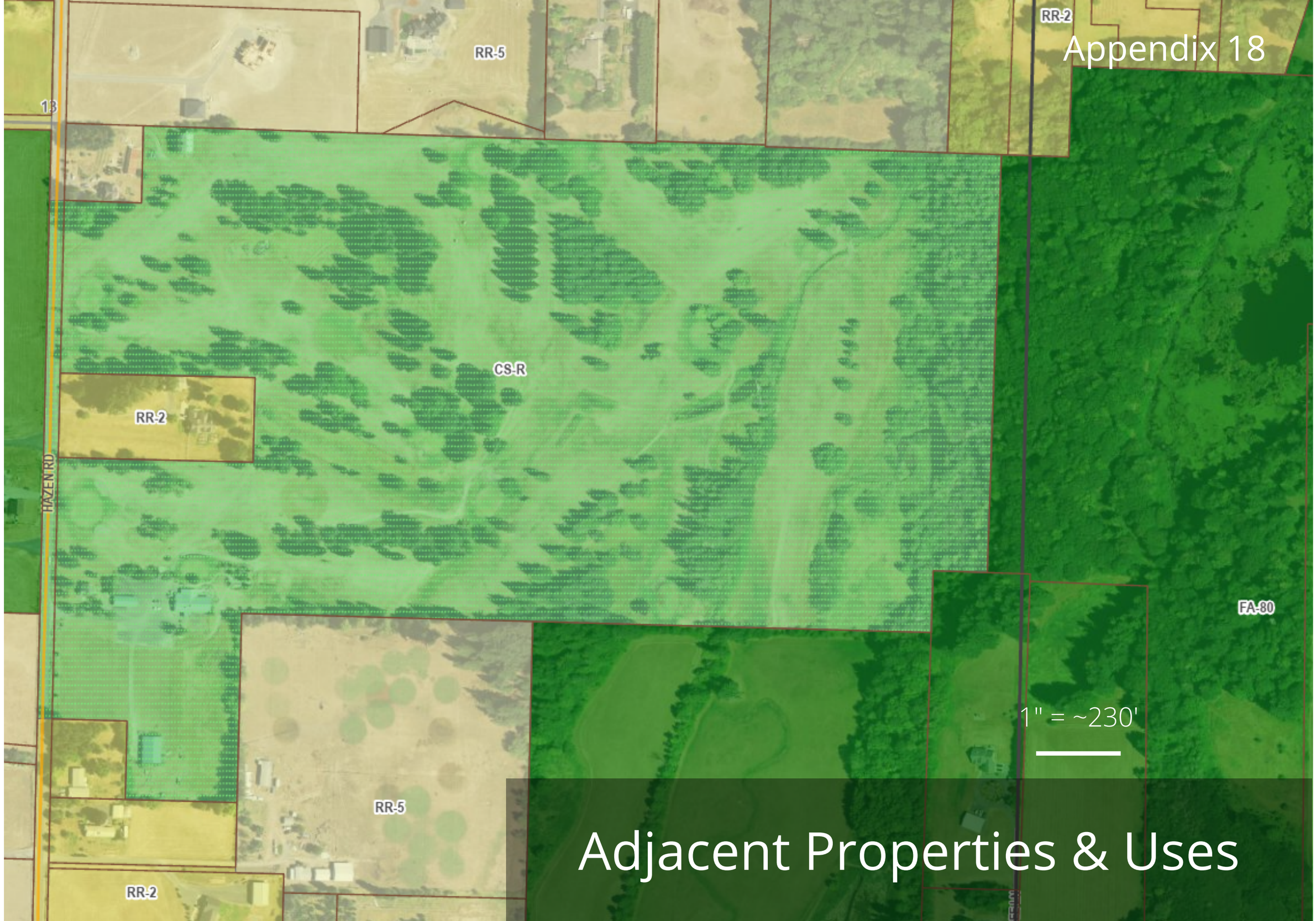
Existing Structures

Appendix 17



Existing Roads

Appendix 18

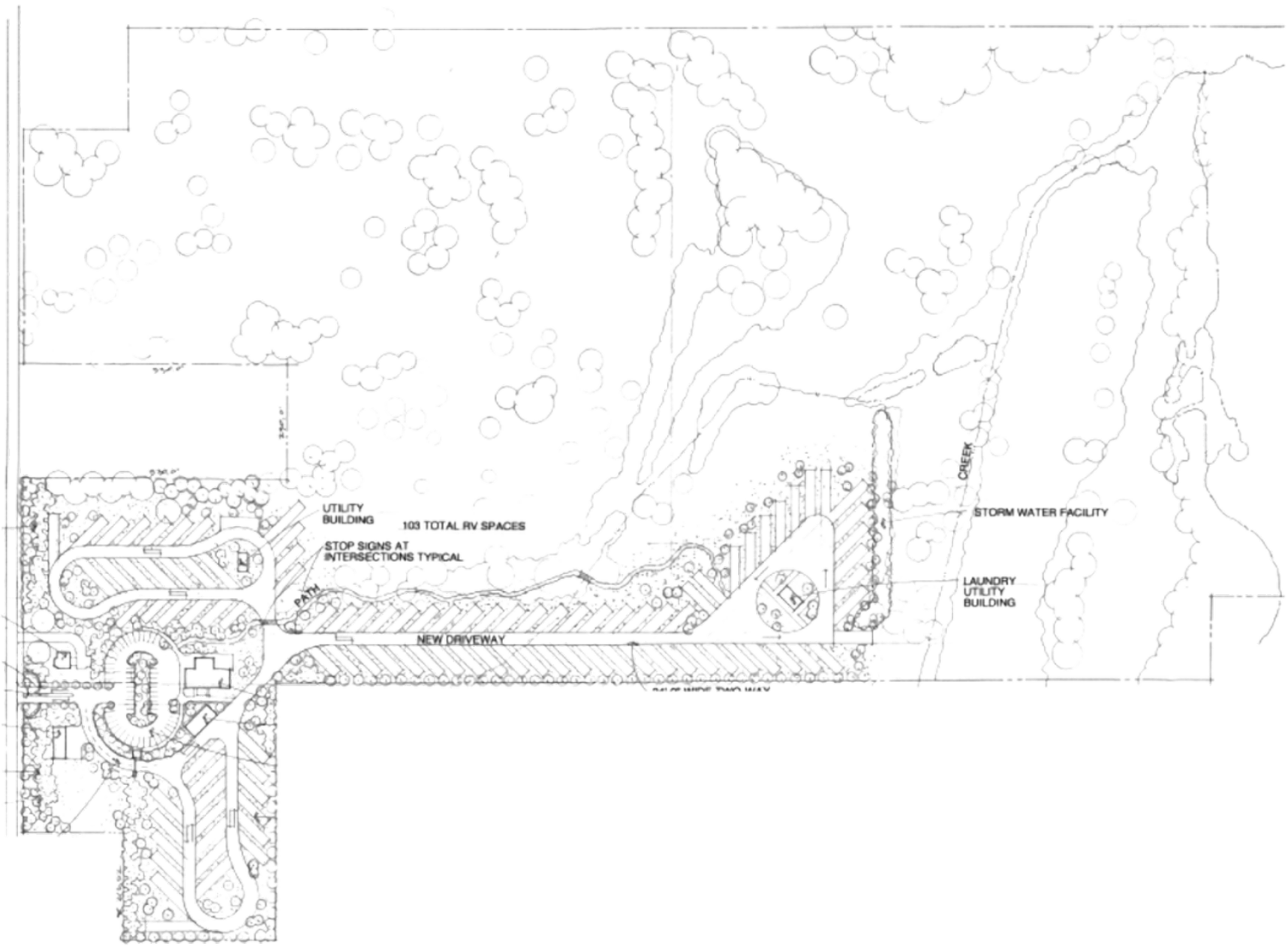


1" = ~230'

Adjacent Properties & Uses

Site Plan

Appendix 19



Appendix 20

Existing Site with Proposed Development

2,345'

211'

210'

Hazell Rd

528'

233'

1,414'

Golf Course
Approx. 77 acres

1,146'

NEW DRIVEWAY

169'

148'

1,882'

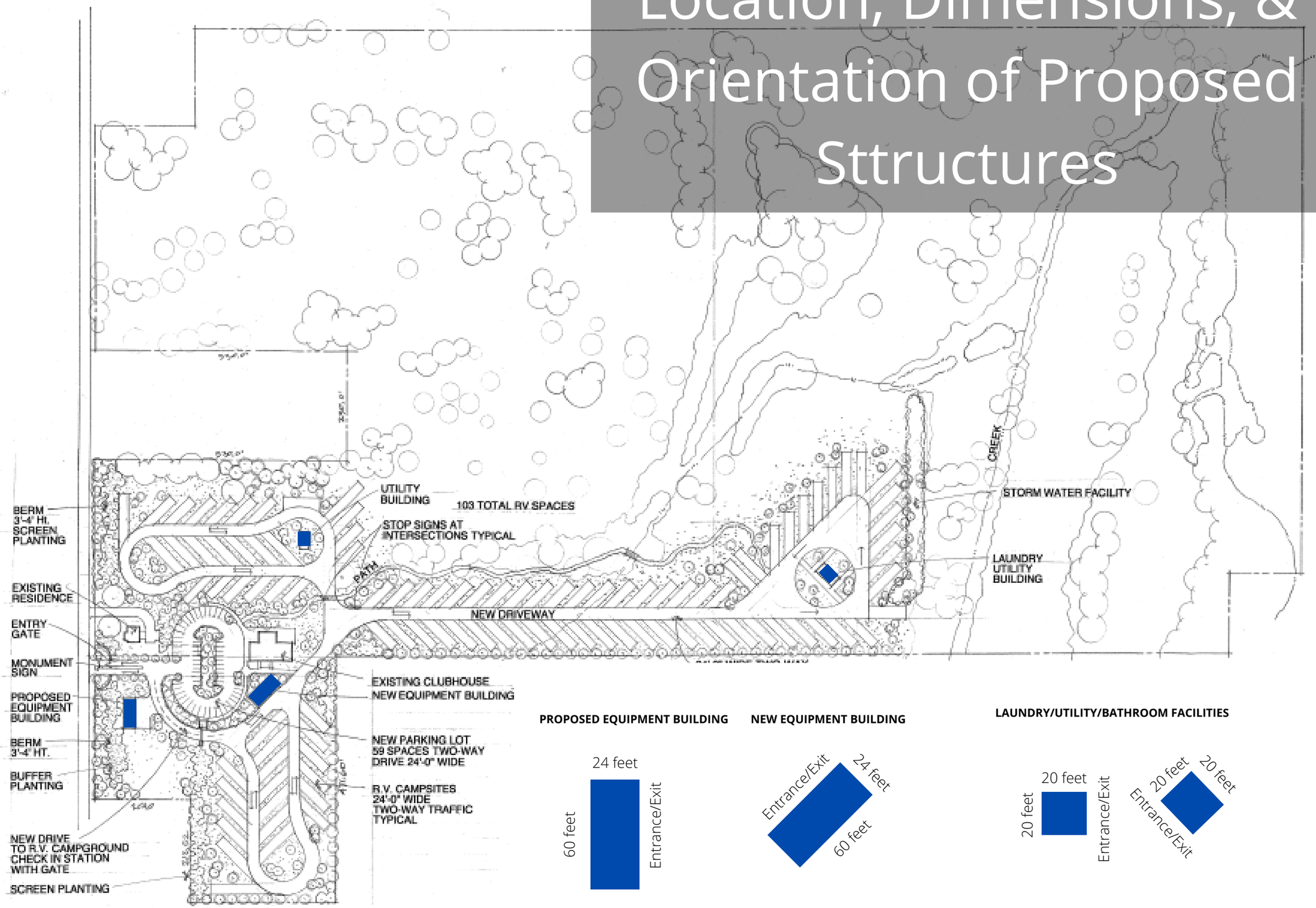
512'

208'

216'

1" = ~125'

Location, Dimensions, & Orientation of Proposed Sttructures



PROPOSED EQUIPMENT BUILDING

NEW EQUIPMENT BUILDING

LAUNDRY/UTILITY/BATHROOM FACILITIES

Quatrefoil Inc.

REGISTERED
352
MARK BARKER
OREGON
07/28/1995
LANDSCAPE ARCHITECT

Saint Helen's Golf
Proposed R.V. Campground
and Clubhouse Site Improvements

SITE PLAN

REVISIONS:

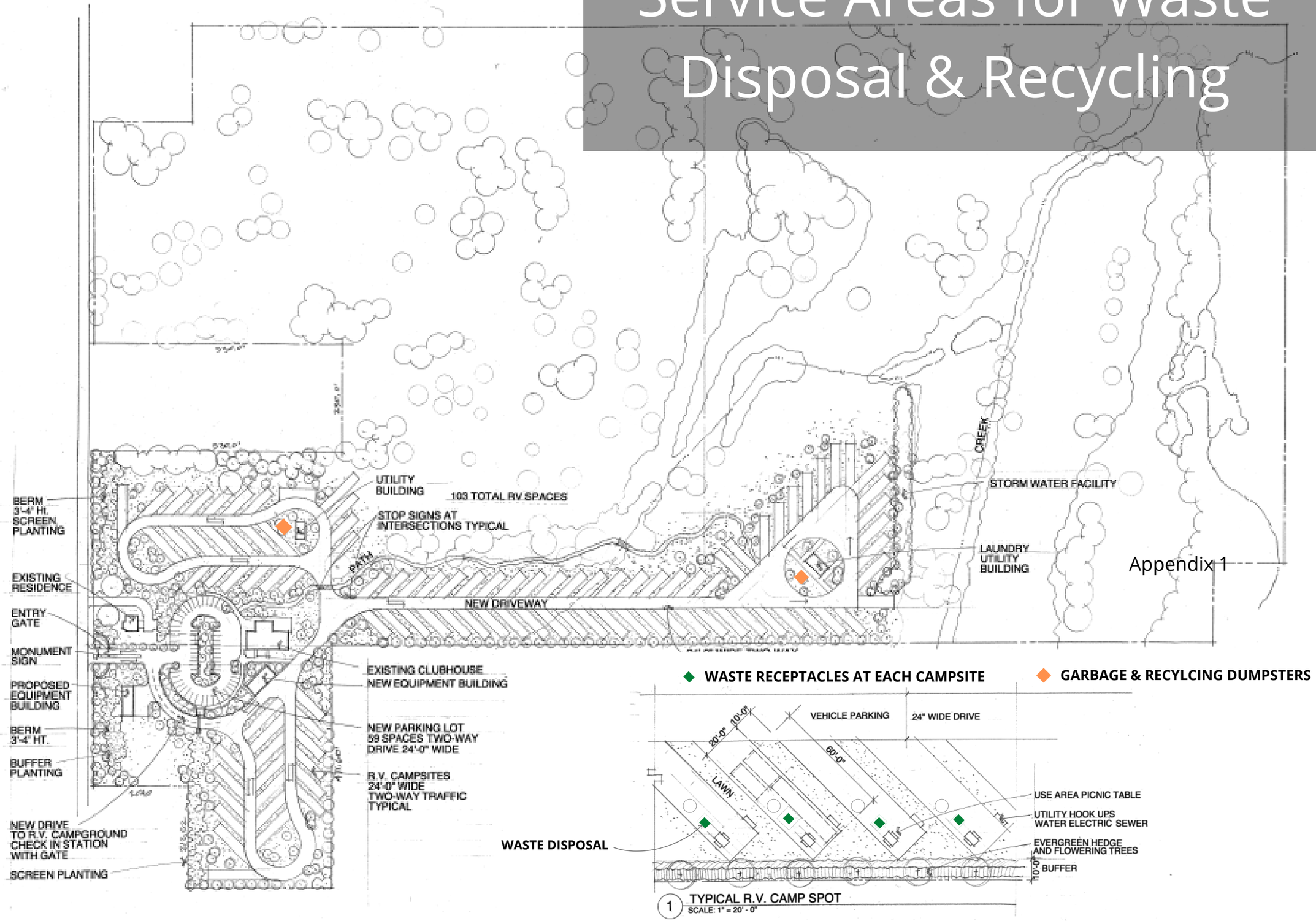
DATE: 4.27.2022

SCALE: 1" = 100' - 0"

SHEET: L.1

Service Areas for Waste Disposal & Recycling

Appendix 22



Quatrefoil Inc.

REGISTERED LANDSCAPE ARCHITECT
OREGON

Saint Helen's Golf
Proposed R.V. Campground and Clubhouse Site Improvements

SITE PLAN

REVISIONS:

DATE: 4.27.2022

SCALE: 1" = 100' - 0"

SHEET: L.1

Appendix 23

Columbia PUD Will Serve Letter

COLUMBIA RIVER PUD
A COMMUNITY-OWNED UTILITY

64001 Columbia River Highway
Deer Island, OR 97054

Post Office Box 1193
St. Helens, OR 97051

(503) 397-1844 Phone
(503) 397-5215 Fax

www.crpud.net
facebook.com/crpud
twitter.com/crpudUtility

February 22, 2022

OHM Equity Partners
Attn: Joe Kessi
33470 SW Chinook Plaza #213
Scappoose, OR 97056
Kessi503@gmail.com

Re: Tax lot 4213-D0-00103

To whom it may concern,

The Saint Helens Golf Course Property, tax lot 4213-D0-00103, is within the boundaries established for Columbia River People's Utility District (PUD). The PUD will provide electric service to the property in accordance with our General Terms, Conditions, Rules and Regulation for Electric Service.

If you have any questions, please contact our Engineering Department at (503) 397-0760.

Thank you,

B Staehely

Branden Staehely
Engineering Manager

Appendix 24

Letter from McMullen Well Drilling Corp

McMullen Well Drilling Corp
36061 Construction Way St. Helens, Oregon 97051
503-397-2356 mcmullenwelldrilling@gmail.com

WATER AVAILABILITY

Property Owner: SPMC Holdings LLC / St. Helens Golf Course

Prospective Buyer: Brad Hendricksen

Property Situs: 4N 2W Sec 13 Tax #00103 Account #8930

57246 Hazen Road, Warren, OR 97053

Columbia County, Oregon

Current recorded well reports indicate that wells drilled in this area have:

1) a typical well depth of 150′ to 410′

2) a typical water well flow of 25gpm to 200gpm

3) also indicate 2 main aquifers in this area with:

a) a gravel formation at ~50′ to 200′ in depth

b) a weather top, water bearing, basalt rock formation at ~400′ to 600′

Both formations have well reports showing water bearing zones, having 100+gpm flows.

In a calculation with 100 camping hookups, the estimated number of average gallons per day, would be 4000 to 6000. A pumping rate of 4.16 gallons per minute would be needed to maintain this amount per 24 hours.

An assessment done by Lower Columbia Engineering also concludes that there is enough water to supply the RV Park.

The two existing aquifers should have more than enough supply for any suppression system required.

In conclusion, a pumping rate of 4.16 gallons per minute would have no significant impact on either of the 2 known aquifers in this area.

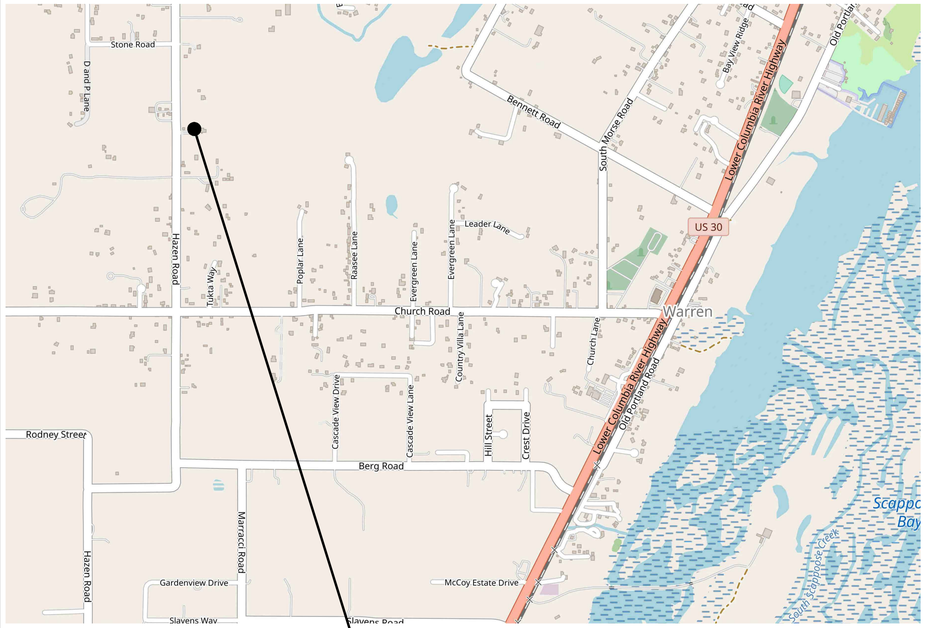
Art McMullen

Preliminary Drainage Plan

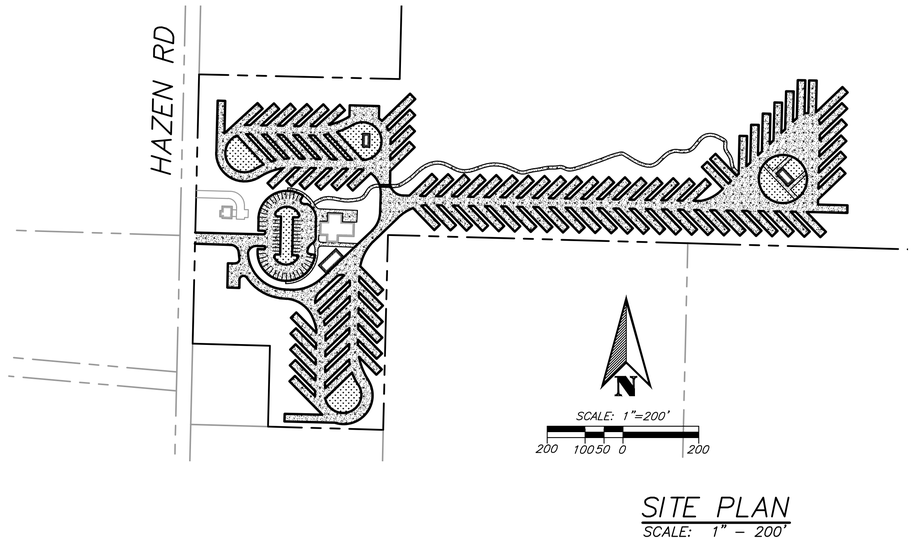
Appendix 25

IRONWOOD GOLF COURSE RV PARK

57246 HAZEN ROAD
WARREN, OR 97053



VICINITY MAP
N.T.S.



SITE PLAN
SCALE: 1" = 200'

- **OWNER/DEVELOPER**
  OHM EQUITY PARTNERS
  33470 CHINOOK PLAZA, SUITE 213
  SCAPPOOSE, OR 97056
  PH: 503-410-5621
  CONTACT: JOE KESSI
- **CIVIL ENGINEER**
  DL CONSULTING WA, INC
  500 WEST 8TH ST, SUITE 45
  VANCOUVER, WA 98660
  PH: (360) 567-6466
  CONTACT: GARY DARLING, P.E.
- **UTILITIES/SERVICES**
  WATER: WARREN WATER
  SEWER: PRIVATE SEPTIC
  POWER: COLUMBIA RIVER PUD
  GAS: N.W. NATURAL GAS
  PHONE: CENTURYLINK
  CABLE: COMCAST
  RECYCLING/GARBAGE: WASTE MANAGEMENT
- **PROPOSED USE**
  GOLF COURSE WITH RV PARK
- **SITE AREA**
  4.62 ACRES

NOTE

1. ELEVATIONS AND CONTOURS SHOWN ARE DERIVED FROM PUBLIC USGS ELEVATION DATA, AND HAVE NOT BEEN VERIFIED BY SURVEY
2. SITE PLAN IS CREATED FROM A HAND-DRAWN SITE PLAN. ALL DIMENSIONS SHOULD BE VERIFIED, AS THEY MAY NEED ADJUSTMENTS.

SHEET INDEX

THIS DESIGN COMPLIES WITH ORS 92.044 (7) IN THAT NO UTILITY INFRASTRUCTURE IS DESIGNED TO BE WITHIN ONE (1) FOOT OF A SURVEY MONUMENT LOCATION SHOWN ON A SUBDIVISION OR PARTITION PLAT. NO DESIGN EXCEPTIONS NOR FINAL FIELD LOCATION CHANGES SHALL BE PERMITTED IF THAT CHANGE WOULD CAUSE ANY UTILITY INFRASTRUCTURE TO BE PLACED WITHIN THE PROHIBITED AREA.

DL CONSULTING WA INC.
500 West 8th Street
Suite 45
Vancouver, WA 98660
(360) 768-5141

REGISTERED PROFESSIONAL ENGINEER
19160
OREGON
JULY 15, 1997
GARY I. DARLING
EXPIRES 12-31-23

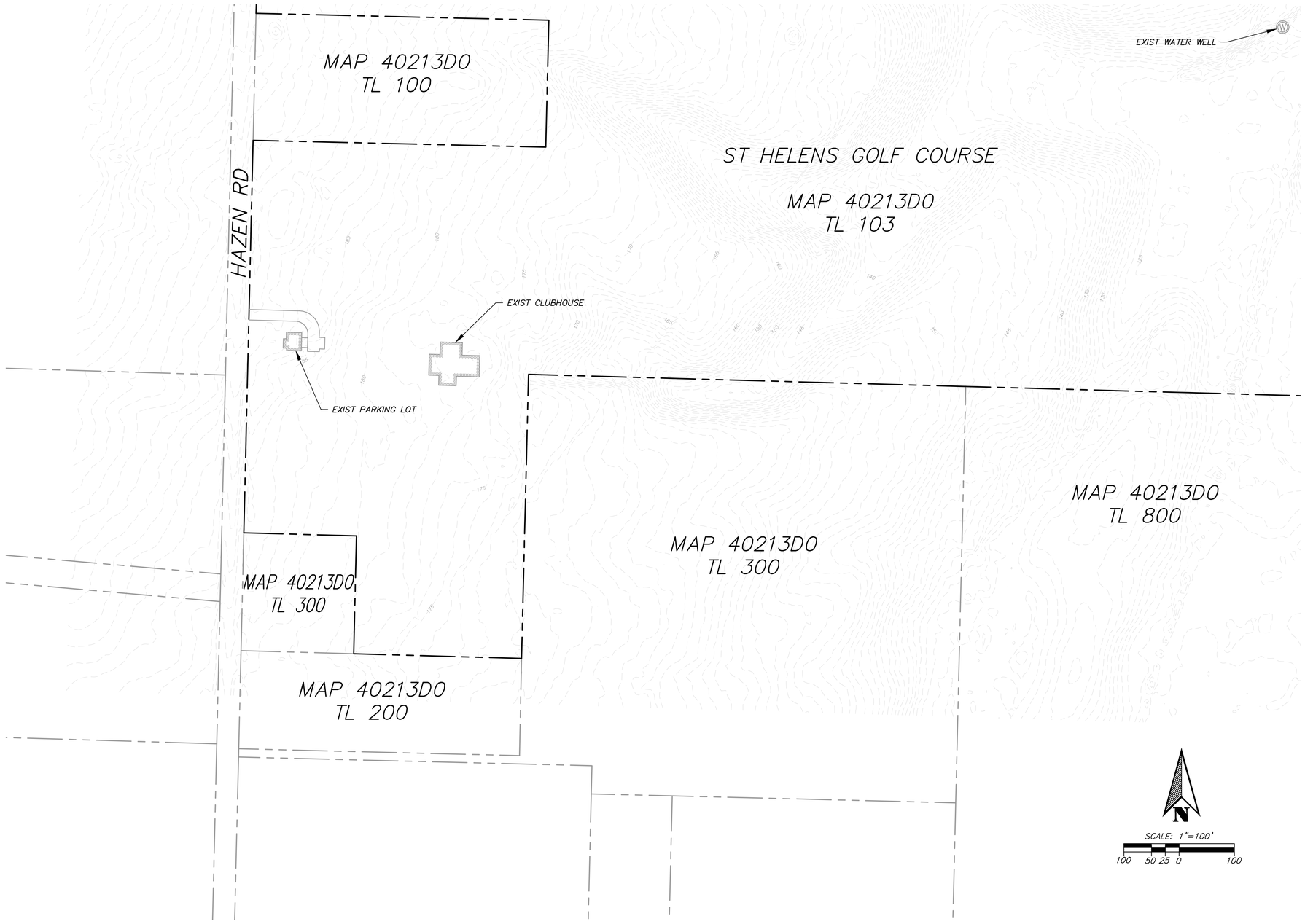
IRONWOOD GOLF COURSE RV PARK
COLUMBIA COUNTY, OR

COVER SHEET

REV.	DATE	BY

PROJECT NUMBER	OHM006
Date:	05/25/2022
Scale:	AS SHOWN
Drawn By:	SAD
Designed By:	GID
Checked By:	GID

C0



EXISTING CONDITIONS
SCALE: 1" – 100'

DL CONSULTING WA INC.
500 West 8th Street
Suite 45
Vancouver, WA 98660
(360) 768-5141

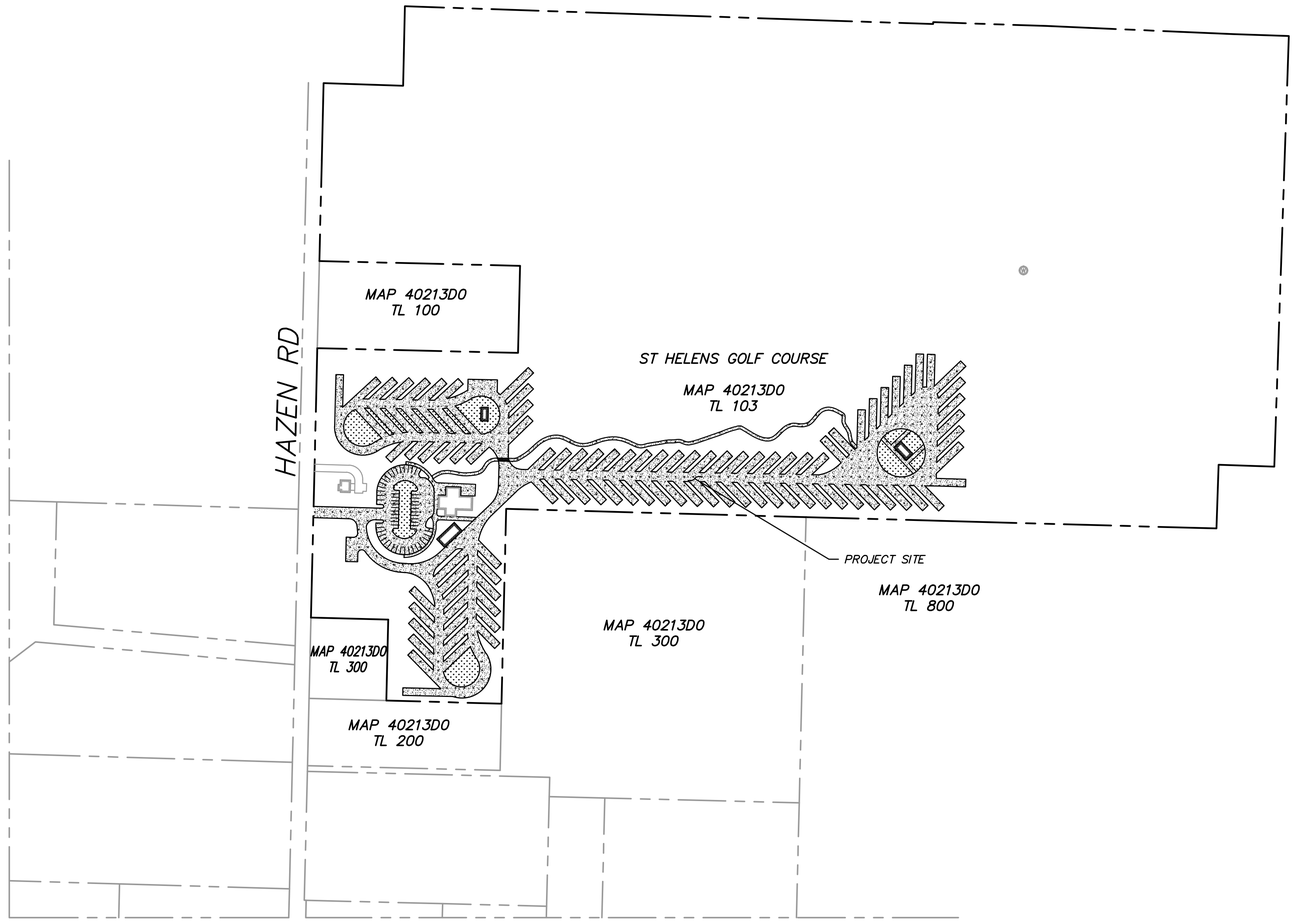
REGISTERED PROFESSIONAL ENGINEER
19160
OREGON
JULY 15, 1997
GARY I. DARLING
EXPIRES 12-31-23

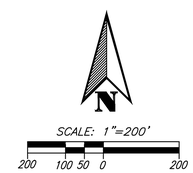
IRONWOOD GOLF COURSE RV PARK
COLUMBIA COUNTY, OR
EXISTING CONDITIONS

REV.	DATE	BY

PROJECT NUMBER	OHM006
Date:	05/25/2022
Scale:	AS SHOWN
Drawn By:	SAD
Designed By:	GID
Checked By:	GID

C1.1





KEY MAP
SCALE: 1" – 200'

DL CONSULTING WA INC.
500 West 8th Street
Suite 45
Vancouver, WA 98660
(360) 768-5141

REGISTERED PROFESSIONAL ENGINEER
19160
OREGON
JULY 15, 1997
GARY I. DARLING
EXPIRES 12–31–23

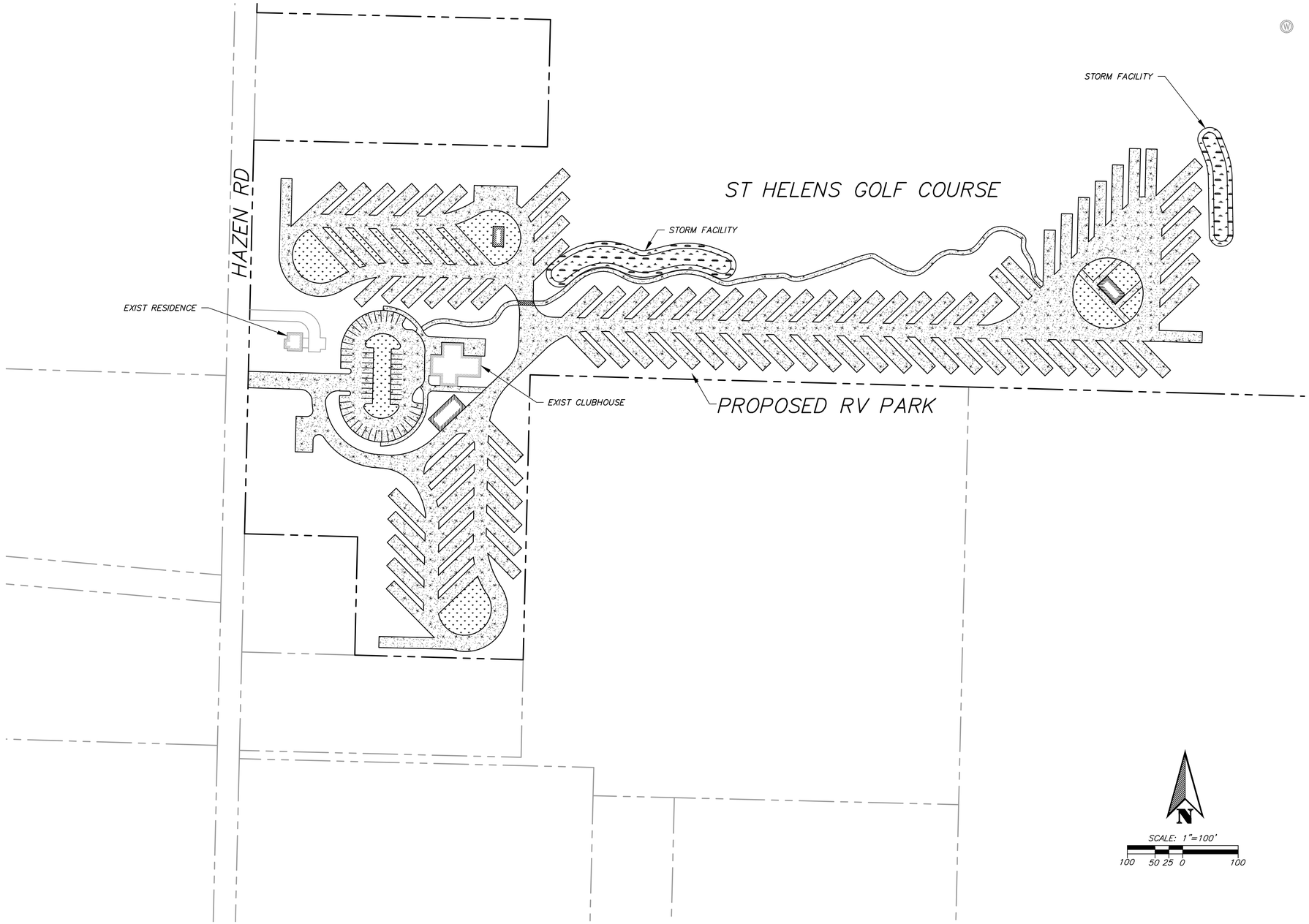
IRONWOOD GOLF COURSE RV PARK
COLUMBIA COUNTY, OR

KEY MAP

REV.	DATE	BY

PROJECT NUMBER	OHM006
Date:	05/25/2022
Scale:	AS SHOWN
Drawn By:	JEM
Designed By:	GID
Checked By:	GID

C1.2



SITE PLAN
SCALE: 1" – 100'

SCALE: 1"=100'
100 50 25 0 100

DL CONSULTING WA INC.
500 West 8th Street
Suite 45
Vancouver, WA 98660
(360) 768-5141

REGISTERED PROFESSIONAL ENGINEER
19160
OREGON
JULY 15, 1997
GARY I. DARLING
EXPIRES 12-31-23

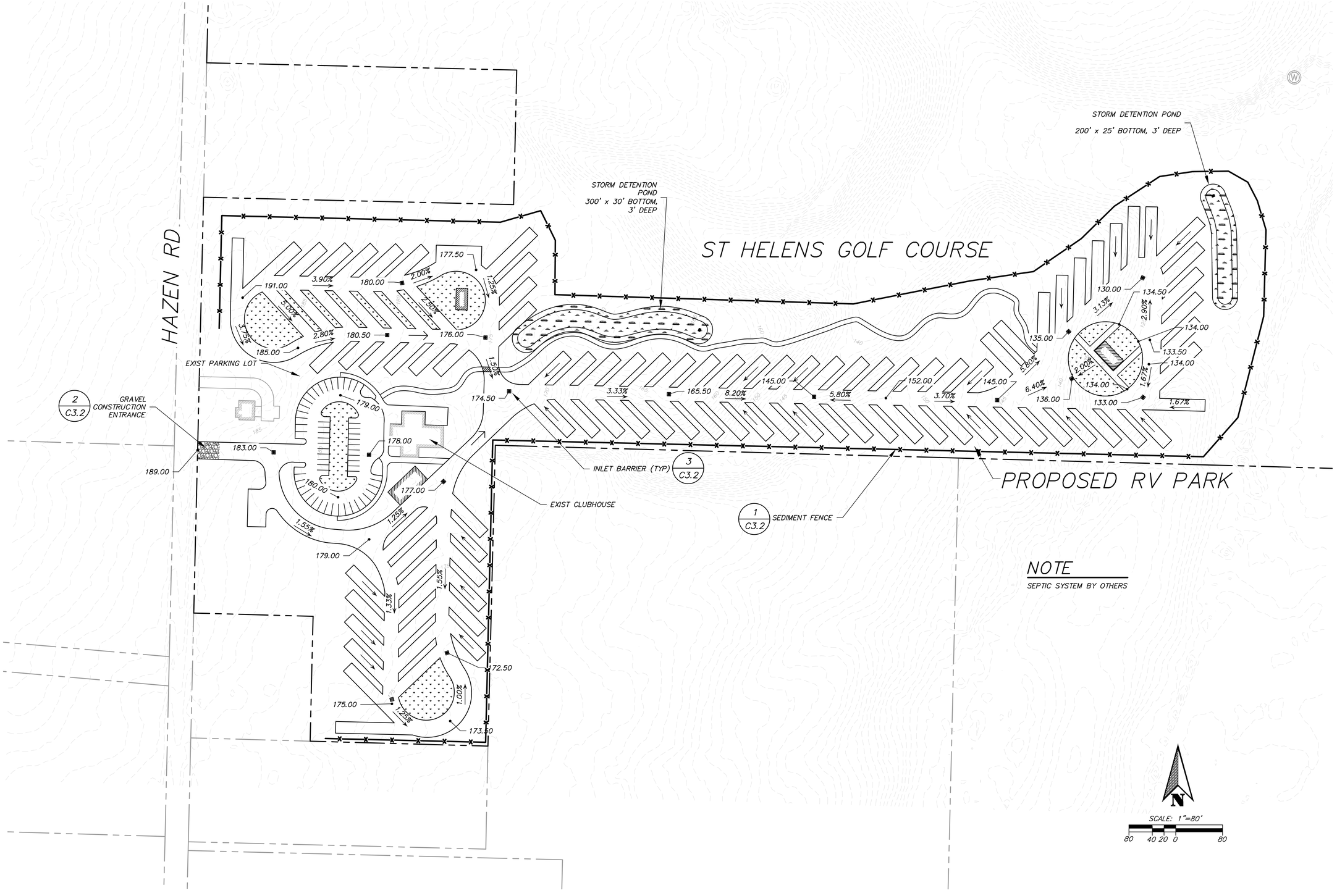
IRONWOOD GOLF COURSE RV PARK
COLUMBIA COUNTY, OR

SITE PLAN

REV.	DATE	BY

PROJECT NUMBER	OHM006
Date:	05/25/2022
Scale:	AS SHOWN
Drawn By:	SAD
Designed By:	GID
Checked By:	GID

C2.1



NOTE

SEPTIC SYSTEM BY OTHERS

SCALE: 1"=80'

80 40 20 0 80

DL CONSULTING WA INC.
500 West 8th Street
Suite 45
Vancouver, WA 98660
(360) 768-5141

REGISTERED PROFESSIONAL ENGINEER
19160
OREGON
JULY 15, 1997
GARY I. DARLING
EXPIRES 12-31-23

IRONWOOD GOLF COURSE RV PARK
COLUMBIA COUNTY, OR

GRADING & EROSION CONTROL PLAN

REV.	DATE	BY

PROJECT NUMBER	OHM006
Date:	05/25/2022
Scale:	AS SHOWN
Drawn By:	SAD
Designed By:	GID
Checked By:	GID

C3.1

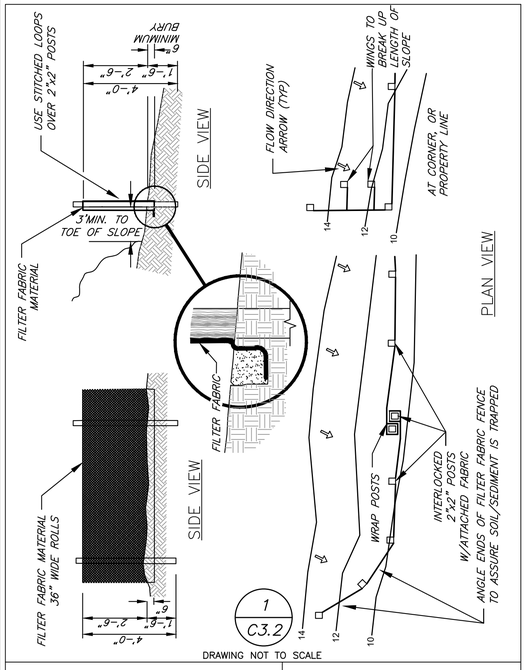
INSPECTION FREQUENCY:

SITE CONDITION	MINIMUM FREQUENCY
1. ACTIVE PERIOD	ON INITIAL DATE THAT LAND DISTURBANCE ACTIVITIES COMMENCE. WITHIN 24 HOURS OF ANY STORM EVENT, INCLUDING RUNOFF FROM SNOW MELT, THAT RESULTS IN DISCHARGE FROM THE SITE. AT LEAST ONCE EVERY 14 DAYS, REGARDLESS OF WHETHER STORMWATER RUNOFF IS OCCURRING.
2. INACTIVE PERIODS GREATER THAN FOURTEEN (14) CONSECUTIVE CALENDAR DAYS	THE INSPECTOR MAY REDUCE THE FREQUENCY OF INSPECTIONS IN ANY AREA OF THE SITE WHERE THE STABILIZATION STEPS IN SECTION 2.2.20 HAVE BEEN COMPLETED TO TWICE PER MONTH FOR THE FIRST MONTH, NO LESS THAN 14 CALENDAR DAYS APART, THEN ONCE PER MONTH.
3. PERIODS DURING WHICH THE SITE IS INACCESSIBLE DUE TO INCLEMENT WEATHER	IF SAFE, ACCESSIBLE AND PRACTICAL, INSPECTIONS MUST OCCUR DAILY AT A RELEVANT DISCHARGE POINT OR DOWNSTREAM LOCATION OF THE RECEIVING WATERBODY
4. PERIODS DURING WHICH CONSTRUCTIOn ACTIVITIES ARE SUSPENDED AND RUNOFF IS UNLIKELY DUE TO FROZEN CONDITIONS.	VISUAL MONITORING INSPECTIONS MAY BE TEMPORARILY SUSPENDED. IMMEDIATELY RESUME MONITORING UPON THAWING, OR WHEN WEATHER CONDITIONS MAKE DISCHARGES LIKELY.
5. PERIODS DURING WHICH CONSTRUCTION ACTIVITIES ARE CONDUCTED AND RUNOFF IS UNLIKELY DURING FROZEN CONDITIONS.	VISUAL MONITORING INSPECTIONS MAY BE REDUCED TO ONCE A MONTH. IMMEDIATELY RESUME MONITORING UPON THAWING, OR WHEN WEATHER CONDITIONS MAKE DISCHARGES LIKELY.

EROSION CONTROL NOTES:

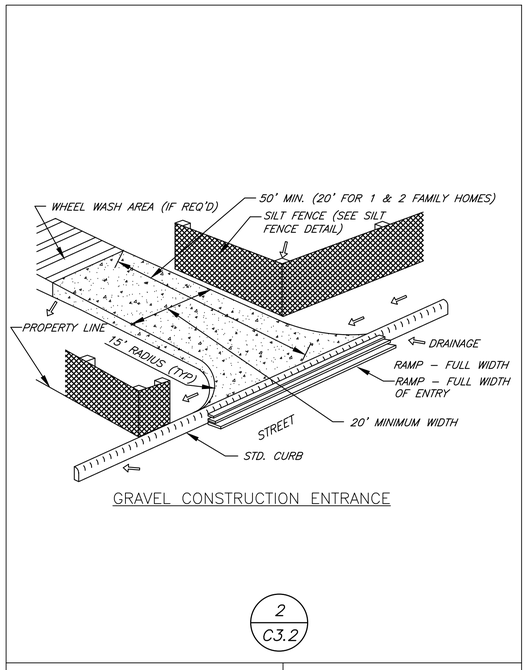
REQUIRED MEASURES

1. A GRAVEL CONSTRUCTION ENTRANCE (ECM–SECTION 3.3.1) SHALL BE INSTALLED PRIOR TO THE BEGINNING OF GRADING
2. WHERE SLOPES EXCEED 5% A SEDIMENT FENCE (ECM–SECTION 3.3.2) SHALL BE INSTALLED AT THE BASE OF THE DISTURBED AREA OR DIRT STOCKPILES
3. ON SLOPES EXCEEDING 10% SEDIMENT FENCES ARE REQUIRED AT INTERVALS SPECIFIED IN TABLE 3–2 OF THE EROSION CONTROL MANUAL
4. AS AN ALTERNATIVE TO A SEDIMENT FENCES, VEGETATED AND UNDISTURBED BUFFERS AT THE BASE OF THE SLOPE ON THE SUBJECT PROPERTY CAN BE UTILIZED. SLOPES ABOVE THE BUFFER CANNOT EXCEED 10% AND THE BUFFER WIDTH MUST BE AT LEAST EQUAL TO THE UPHILL–DISTURBED AREA DRAINING TO IT
5. DURING WET WEATHER, OCTOBER 1–APRIL 30, A 6–MIL PLASTIC SHEET COVER (ECM–SECTION 3.3.9) OR A MINIMUM 2" OF STRAW MULCH COVER SHALL BE REQUIRED ON STOCKPILES WHERE SEDIMENT IS ERODING AND LEAVING THE SUBJECT PROPERTY OR ENTERING A WATER RESOURCE
6. GROUND COVER SHALL BE REESTABLISHED PRIOR TO REMOVING THE EROSION CONTROL MEASURES DESCRIBED ABOVE (ECM–SECTION 3.3.6)



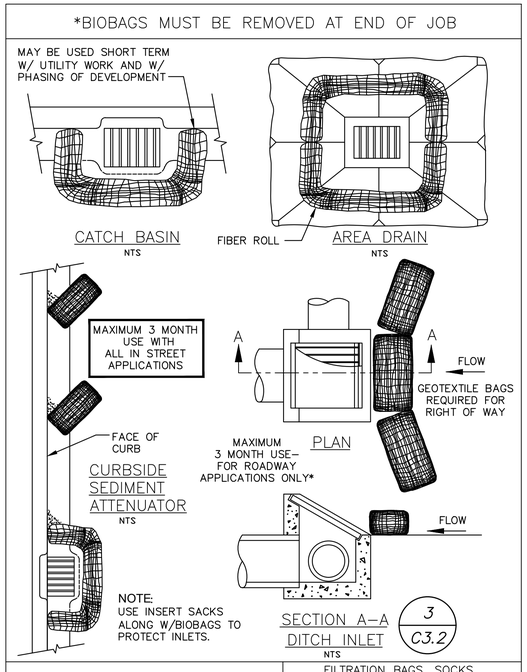
EROSION CONTROL MANUAL | TEMPORARY SEDIMENT FENCE
Detail Drawing 4.3–A

FILE DRAFT:INSPECTORS GRAPHICS DRAWING PLOT 1:1



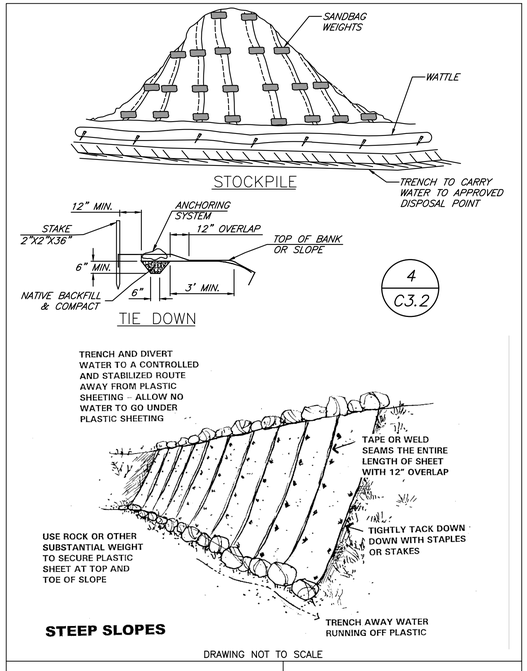
EROSION CONTROL MANUAL | GRAVEL CONSTRUCTION ENTRANCE
Detail Drawing 4.2–A

FILE DRAFT:INSPECTORS GRAPHICS DRAWING DR 3.3.1 PLOT 1:1



EROSION CONTROL MANUAL | FILTRATION BAGS, SOCKS, & ROLLS FOR TEMPORARY INLET PROTECTION
Detail Drawing 4.3–B

FILE DRAFT:INSPECTORS GRAPHICS DRAWING PLOT 1:1



EROSION CONTROL MANUAL | PLASTIC SHEETING
Detail Drawing 4.5–E

FILE DRAFT:INSPECTORS GRAPHICS DRAWING PLOT 1:1

DL CONSULTING WA INC.
500 West 8th Street
Suite 45
Vancouver, WA 98660
(360) 768-5141

REGISTERED PROFESSIONAL ENGINEER
19160
OREGON
JULY 15, 1997
GARY I. DARLING
EXPIRES 12–31–23

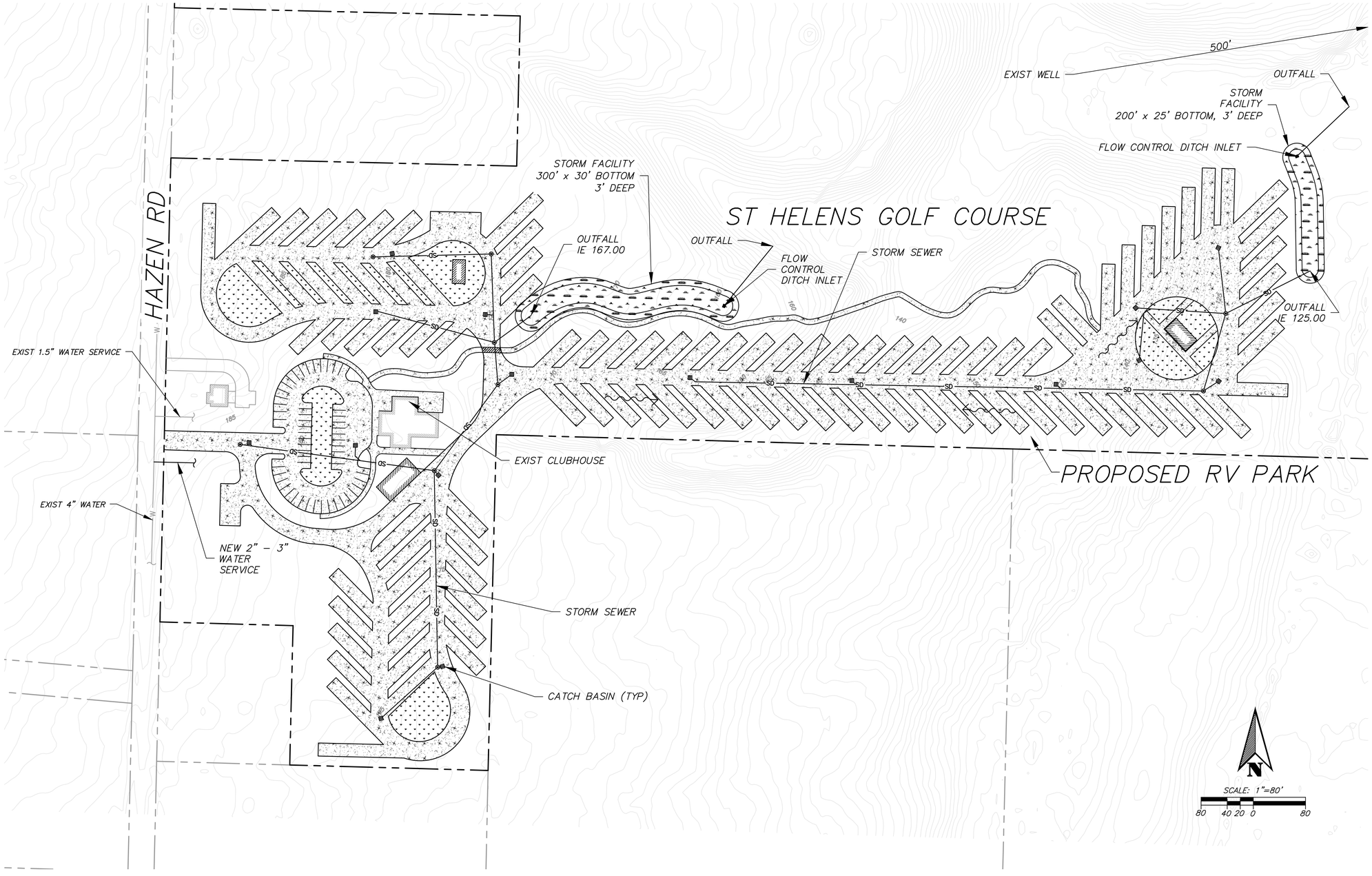
IRONWOOD GOLF COURSE RV PARK
COLUMBIA COUNTY, OR

EROSION CONTROL DETAILS

REV.	DATE	BY

PROJECT NUMBER	OHM006
Date:	05/25/2022
Scale:	AS SHOWN
Drawn By:	SAD
Designed By:	GID
Checked By:	GID

C3.2



DRAINAGE PLAN
SCALE: 1" - 80'

DL CONSULTING WA INC.
500 West 8th Street
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REGISTERED PROFESSIONAL ENGINEER
19160
OREGON
JULY 15, 1997
GARY I. DARLING
EXPIRES 12-31-23

IRONWOOD GOLF COURSE RV PARK
COLUMBIA COUNTY, OR

DRAINAGE & UTILITY PLAN

REV.	DATE	BY

PROJECT NUMBER	OHM006
Date:	05/25/2022
Scale:	AS SHOWN
Drawn By:	SAD
Designed By:	GID
Checked By:	GID

C4.1

DL CONSULTING WA INC.

Preliminary Stormwater Report

Ironwood Golf Course RV Park
57246 Hazen Road
Columbia County, Oregon 97053

Prepared for:

OHM Equity Partners
33470 Chinook Plaza
Scappoose, OR 97056

Prepared By:

Gary Darling
DL Consulting, Inc.
500 West 8th Street, Suite 45
Vancouver, WA 98660

May 23rd, 2022
Project No: OHM006

PROJECT OVERVIEW

I hereby certify that this Preliminary Stormwater Report for the Ironwood Golf Course RV Park, has been prepared by me or under my supervision and meets minimum standards for the Columbia County of Oregon Stormwater and Erosion Control Ordinance and normal standards of engineering practice. I hereby acknowledge and agree that the jurisdiction does not and will not assume liability for the sufficiency, sustainability, or performance of drainage facilities designed by me.

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List of Figures

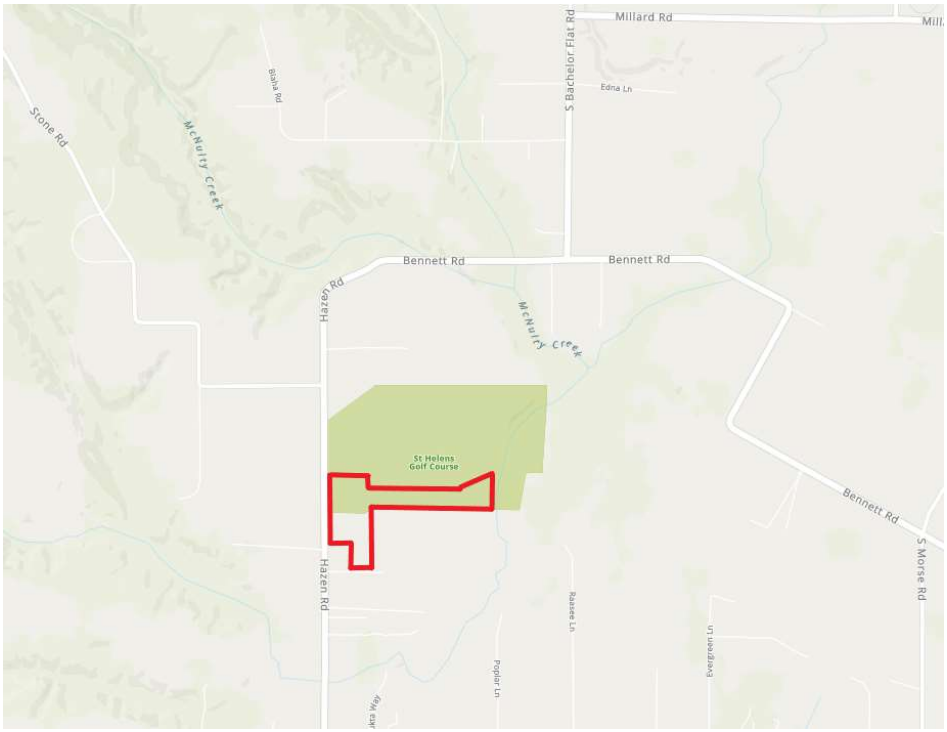

Figure 1: Vicinity Map

PROJECT OVERVIEW

The proposed project is an RV park constructed over a 14.6-acre property at Ironwood Golf Course. The project is located at the eastern side of Hazen Road on Tax Lot 8930, NE ¼ of Section 13, T4N, R2W, WM. The site currently contains four structures and a parking lot that connects to Hazen Road. The site generally slopes from west to east with its highest point located on its west end and its lowest point located near its eastern end.

The existing structures and parking currently on site will be preserved. 102 RV spaces will be built on site in addition to a second access road connecting the park to Hazen Road. The whole site will cover an area of. Since the plans for the new homes and workshop structures have not been designed, all post construction areas are assumed to be impermeable.

To collect runoff from the new impermeable surfaces, two detention ponds will be constructed: one located to the center north of the project area and one to the east side each servicing basins A and B respectively. The basin and pond locations are located in Figure 2. Once stormwater has been detained by the ponds, it will be discharged into natural drainage ditches. By implementing these proposed stormwater facilities, stormwater outflow will be controlled to maintain proper treatment of runoff.

DETENTION

Each detention pond will manage the difference between the following storm events:

50% of 2 year predeveloped vs. 2 year developed
10 year predeveloped vs. 10 year developed
100 year predeveloped vs. 100 year developed

Pond A and B are designed to handle discharge from 5.186 and 2.756 square feet of impervious area respectively. Each pond will use 3:1 side slopes and maximum depth of 3 feet. Pond A will be 300 feet long and 30 feet wide, while Pond B will be 200 feet long and 25 feet wide.

Each pond will be managed with a control structure containing two orifices. The control structure will ensure that the runoff leaving the pond will be less than or equal to the predeveloped runoff for each storm event. See Figures 13 for the level pool routing table.

Appendix

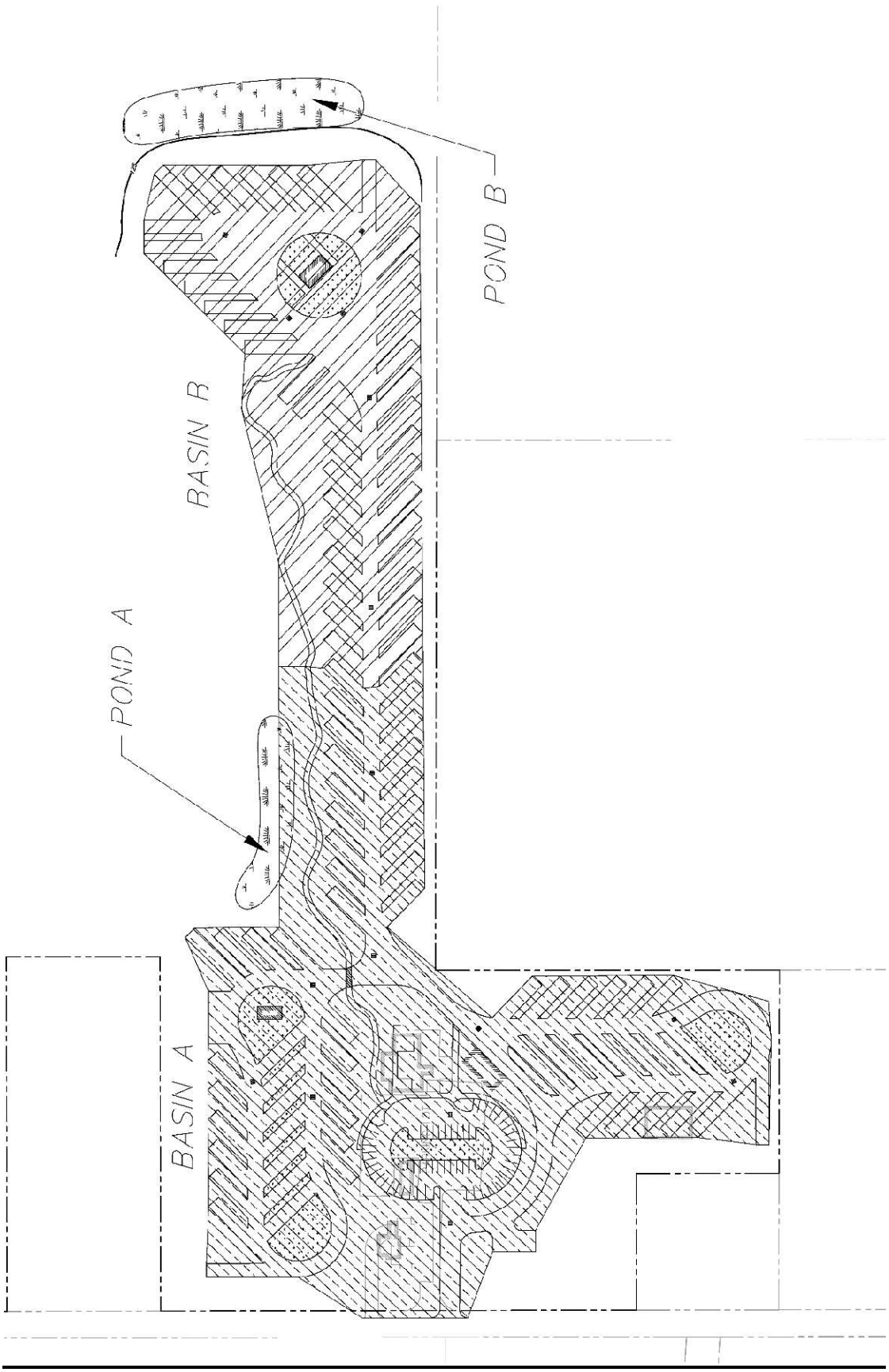

Figure 2: Drainage Map

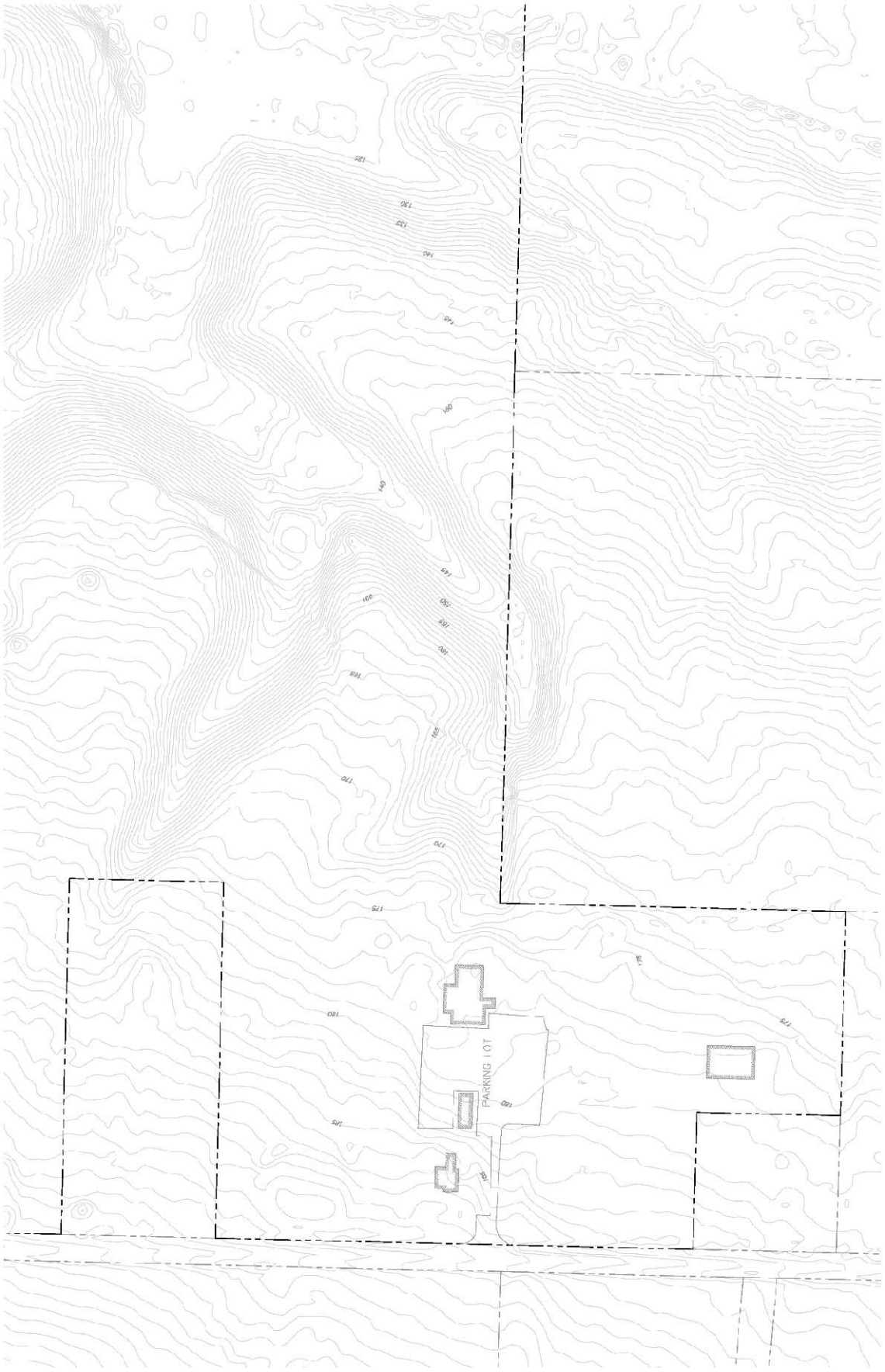

Figure 3: Existing Conditions

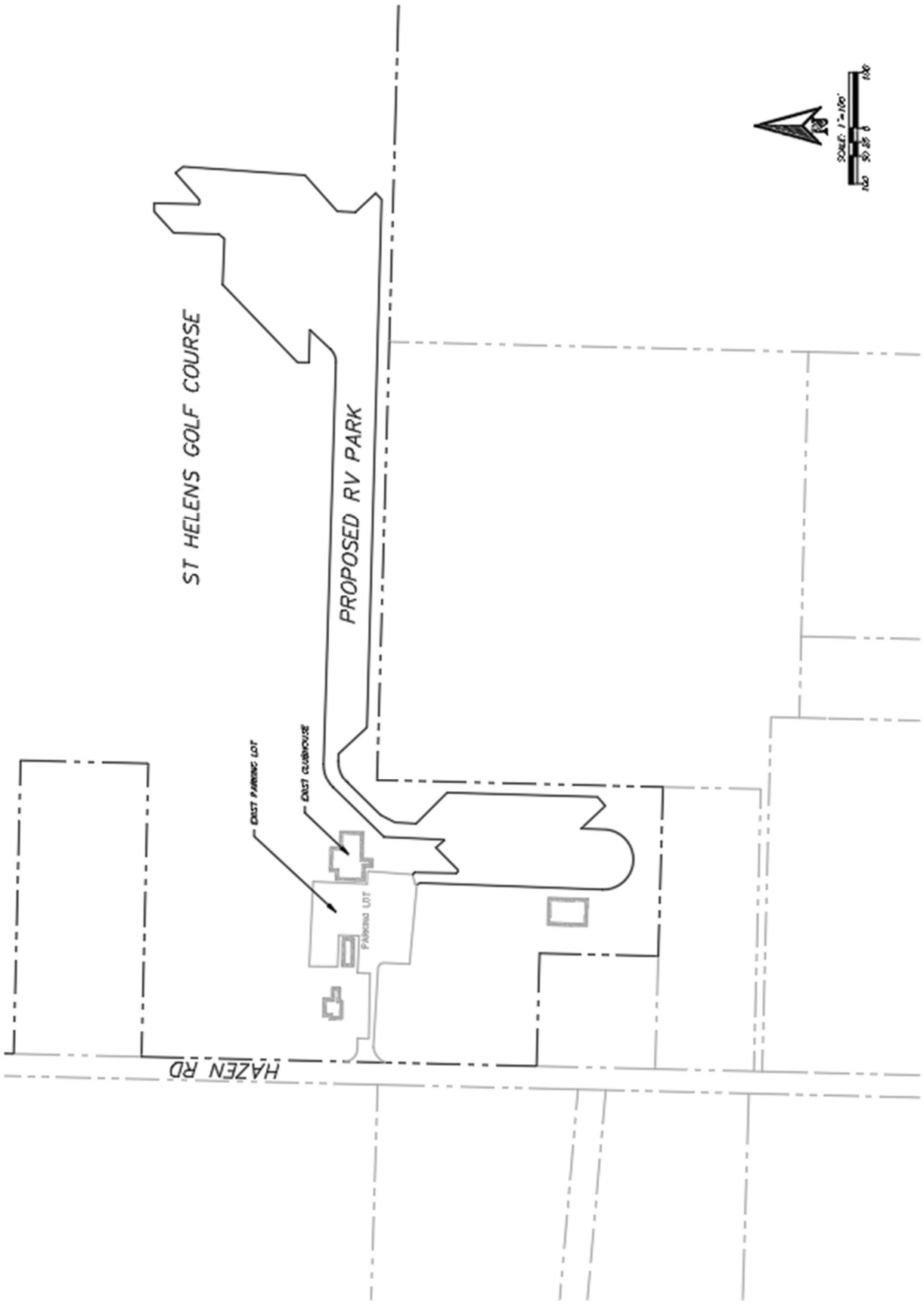

Figure 4: Proposed Development

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Columbia County, Oregon

May 2, 2022

Figure 5: NRCS Soil Survey

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


Custom Soil Resource Report
Soil Map
69
1A
40B
Hazen Rd
1A
40B
69
63
1B
40B
1B
1A
Soil Map may not be valid at this scale.
Map Scale: 1:4,030 if printed on A landscape (11" x 8.5") sheet.
Meters
0 50 100 200 300
Feet
0 150 300 600 900
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

9

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Columbia County, Oregon
Survey Area Data: Version 19, Oct 27, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 29, 2015—Sep 13, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1A	Aloha silt loam, 0 to 3 percent slopes	25.7	35.2%
1B	Aloha silt loam, 3 to 8 percent slopes	4.3	5.9%
40B	Quatama silt loam, 3 to 8 percent slopes	19.4	26.5%
63	Wapato silt loam	7.1	9.8%
69	Wollent silt loam	16.6	22.7%
Totals for Area of Interest		**73.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Columbia County, Oregon

1A—Aloha silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 21f8
Elevation: 100 to 300 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Aloha and similar soils: 90 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Aloha

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

H1 - 0 to 7 inches: silt loam
H2 - 7 to 40 inches: loam
H3 - 40 to 60 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.8 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: R002XC007OR - Valley Swale Group
Forage suitability group: Somewhat Poorly Drained (G002XY005OR)
Other vegetative classification: Somewhat Poorly Drained (G002XY005OR)
Hydric soil rating: No

Minor Components

Wollent

Percent of map unit: 2 percent
Landform: Terraces

Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Poorly Drained (G002XY006OR)
Hydric soil rating: Yes

1B—Aloha silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 21f9
Elevation: 100 to 300 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Aloha and similar soils: 90 percent
Minor components: 4 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Aloha

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

H1 - 0 to 7 inches: silt loam
H2 - 7 to 40 inches: loam
H3 - 40 to 60 inches: very fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.8 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: R002XC007OR - Valley Swale Group

Forage suitability group: Somewhat Poorly Drained (G002XY005OR)
Other vegetative classification: Somewhat Poorly Drained (G002XY005OR)
Hydric soil rating: No

Minor Components

Dayton
Percent of map unit: 2 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Poorly Drained (G002XY006OR)
Hydric soil rating: Yes

Wollent
Percent of map unit: 2 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Poorly Drained (G002XY006OR)
Hydric soil rating: Yes

40B—Quatama silt loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 21g9
Elevation: 100 to 300 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 165 to 210 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Quatama and similar soils: 90 percent
Minor components: 4 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Quatama

Setting
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium

Typical profile
H1 - 0 to 25 inches: silt loam
H2 - 25 to 35 inches: silty clay loam

H3 - 35 to 60 inches: loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: R002XC008OR - Valley Terrace Group
Forage suitability group: Moderately Well Drained < 15% Slopes (G002XY004OR)
Other vegetative classification: Moderately Well Drained < 15% Slopes (G002XY004OR)
Hydric soil rating: No

Minor Components

Wollent

Percent of map unit: 2 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Poorly Drained (G002XY006OR)
Hydric soil rating: Yes

Dayton

Percent of map unit: 2 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Poorly Drained (G002XY006OR)
Hydric soil rating: Yes

63—Wapato silt loam

Map Unit Setting

National map unit symbol: 21h6
Elevation: 50 to 400 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days

Farmland classification: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

Map Unit Composition

Wapato and similar soils: 90 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wapato

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Linear
Parent material: Recent silty alluvium

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 40 inches: silty clay loam
H3 - 40 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: NoneFrequent
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F002XC002OR - Backswamp Group
Forage suitability group: Poorly Drained (G002XY006OR)
Other vegetative classification: Poorly Drained (G002XY006OR)
Hydric soil rating: Yes

69—Wollent silt loam

Map Unit Setting

National map unit symbol: 21hd
Elevation: 100 to 300 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Wollent and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wollent

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty alluvium

Typical profile

H1 - 0 to 11 inches: silt loam
H2 - 11 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F002XB004OR - Fragipan Hill Group
Forage suitability group: Poorly Drained (G002XY006OR)
Other vegetative classification: Poorly Drained (G002XY006OR)
Hydric soil rating: Yes

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DETAIL BASIN SUMMARY

BASIN ID: 50%2YP-A NAME: 50% 2 YEAR P-DEVELOPED BASIN A
SCS METHODOLOGY

TOTAL AREA.....:	4.85 Acres	BASEFLOWS:	0.00 cfs
RAINFALL TYPE....:	TYPE1A	PERV	IMP
PRECIPITATION....:	2.40 inches	AREA..:	4.38 Acres 0.47 Acres
TIME INTERVAL....:	10.00 min	CN....:	86.00 98.00
		TC....:	10.00 min 5.00 min

ABSTRACTION COEFF: 0.20
PEAK RATE: 1.31 cfs VOL: 0.49 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		310	0.0497	610	0.4147	910	0.2806	1210	0.2213	1510	
20		320	0.0519	620	0.4102	920	0.2785	1220	0.2215	1520	
30		330	0.0522	630	0.4099	930	0.2785	1230	0.2215	1530	
40		340	0.0815	640	0.3784	940	0.2803	1240	0.2222	1540	
50		350	0.0866	650	0.3731	950	0.2806	1250	0.2224	1550	
60		360	0.0870	660	0.3729	960	0.2805	1260	0.2224	1560	
70	0.0006	370	0.1201	670	0.3520	970	0.2673	1270	0.2231	1570	
80	0.0006	380	0.1260	680	0.3485	980	0.2650	1280	0.2233	1580	
90	0.0007	390	0.1265	690	0.3485	990	0.2650	1290	0.2233	1590	
100	0.0071	400	0.1750	700	0.3396	1000	0.2665	1300	0.2240	1600	
110	0.0071	410	0.1833	710	0.3382	1010	0.2668	1310	0.2241	1610	
120	0.0072	420	0.1840	720	0.3381	1020	0.2668	1320	0.2241	1620	
130	0.0140	430	0.2560	730	0.3284	1030	0.2682	1330	0.2248	1630	
140	0.0140	440	0.2683	740	0.3268	1040	0.2685	1340	0.2250	1640	
150	0.0140	450	0.2692	750	0.3267	1050	0.2684	1350	0.2248	1650	
160	0.0197	460	0.3644	760	0.3163	1060	0.2546	1360	0.2097	1660	
170	0.0197	470	0.3811	770	0.3146	1070	0.2522	1370	0.2070	1670	
180	0.0197	480	0.3885	780	0.3145	1080	0.2522	1380	0.2070	1680	
190	0.0231	490	1.1746	790	0.3034	1090	0.2533	1390	0.2075	1690	
200	0.0231	500	1.3069	800	0.3015	1100	0.2536	1400	0.2076	1700	
210	0.0231	510	1.3024	810	0.3015	1110	0.2534	1410	0.2076	1710	
220	0.0256	520	0.8098	820	0.3042	1120	0.2392	1420	0.2082	1720	
230	0.0256	530	0.7327	830	0.3048	1130	0.2367	1430	0.2083	1730	
240	0.0256	540	0.7314	840	0.3047	1140	0.2367	1440	0.2066	1740	
250	0.0291	550	0.5908	850	0.2927	1150	0.2376	1450	0.0317	1750	
260	0.0291	560	0.5679	860	0.2907	1160	0.2378	1460		1760	
270	0.0292	570	0.5669	870	0.2907	1170	0.2377	1470		1770	
280	0.0343	580	0.4608	880	0.2929	1180	0.2232	1480		1780	
290	0.0343	590	0.4430	890	0.2934	1190	0.2205	1490		1790	
300	0.0344	600	0.4428	900	0.2932	1200	0.2206	1500		1800	

Figure 6: 50% 2-Year Predevelopment Runoff Summary Basin A

DETAIL BASIN SUMMARY

BASIN ID: 2YD-A NAME: 2 YEAR DEVELOPED BASIN A
SCS METHODOLOGY

TOTAL AREA.....:	9.70 Acres	BASEFLOWS:	0.00 cfs
RAINFALL TYPE....:	TYPE1A		PERV IMP
PRECIPITATION....:	2.40 inches	AREA..:	4.52 Acres 5.19 Acres
TIME INTERVAL....:	10.00 min	CN....:	86.00 98.00
		TC....:	10.00 min 5.00 min

ABSTRACTION COEFF: 0.20
PEAK RATE: 3.82 cfs VOL: 1.33 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		310	0.4459	610	1.0201	910	0.6432	1210	0.4943	1510	
20		320	0.4481	620	1.0154	920	0.6409	1220	0.4945	1520	
30		330	0.4488	630	1.0145	930	0.6409	1230	0.4945	1530	
40		340	0.5309	640	0.9175	940	0.6429	1240	0.4953	1540	
50		350	0.5361	650	0.9120	950	0.6433	1250	0.4955	1550	
60		360	0.5369	660	0.9115	960	0.6430	1260	0.4955	1560	
70	0.0068	370	0.6224	670	0.8469	970	0.6076	1270	0.4963	1570	
80	0.0068	380	0.6284	680	0.8433	980	0.6052	1280	0.4964	1580	
90	0.0074	390	0.6297	690	0.8431	990	0.6052	1290	0.4964	1590	
100	0.0787	400	0.7713	700	0.8126	1000	0.6068	1300	0.4972	1600	
110	0.0787	410	0.7798	710	0.8111	1010	0.6072	1310	0.4974	1610	
120	0.0793	420	0.7816	720	0.8108	1020	0.6072	1320	0.4974	1620	
130	0.1538	430	0.9901	730	0.7794	1030	0.6087	1330	0.4981	1630	
140	0.1538	440	1.0028	740	0.7777	1040	0.6090	1340	0.4983	1640	
150	0.1543	450	1.0050	750	0.7775	1050	0.6087	1350	0.4980	1650	
160	0.2170	460	1.2608	760	0.7452	1060	0.5726	1360	0.4604	1660	
170	0.2170	470	1.2781	770	0.7434	1070	0.5701	1370	0.4575	1670	
180	0.2173	480	1.2983	780	0.7431	1080	0.5701	1380	0.4575	1680	
190	0.2546	490	3.6811	790	0.7100	1090	0.5714	1390	0.4582	1690	
200	0.2546	500	3.8177	800	0.7081	1100	0.5716	1400	0.4583	1700	
210	0.2548	510	3.8028	810	0.7081	1110	0.5713	1410	0.4583	1710	
220	0.2814	520	2.0311	820	0.7111	1120	0.5348	1420	0.4589	1720	
230	0.2814	530	1.9517	830	0.7117	1130	0.5322	1430	0.4590	1730	
240	0.2817	540	1.9477	840	0.7114	1140	0.5322	1440	0.4553	1740	
250	0.3205	550	1.4830	850	0.6774	1150	0.5332	1450	0.0327	1750	
260	0.3205	560	1.4594	860	0.6753	1160	0.5334	1460		1760	
270	0.3210	570	1.4566	870	0.6753	1170	0.5331	1470		1770	
280	0.3778	580	1.1322	880	0.6778	1180	0.4961	1480		1780	
290	0.3778	590	1.1139	890	0.6782	1190	0.4935	1490		1790	
300	0.3783	600	1.1131	900	0.6779	1200	0.4935	1500		1800	

Figure 7: 2-Year Post-Development Runoff Summary Basin A

DETAIL BASIN SUMMARY

BASIN ID: 10YP-A NAME: 10 YEAR P-DEVELOPED BASIN A
SCS METHODOLOGY

TOTAL AREA.....:	9.70 Acres	BASEFLOWS:	0.00 cfs
RAINFALL TYPE....:	TYPE1A		PERV IMP
PRECIPITATION....:	3.30 inches	AREA..:	8.76 Acres 0.94 Acres
TIME INTERVAL....:	10.00 min	CN....:	86.00 98.00
		TC....:	10.00 min 5.00 min

ABSTRACTION COEFF: 0.20
PEAK RATE: 4.50 cfs VOL: 1.59 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		310	0.2999	610	1.3178	910	0.8545	1210	0.6610	1510	
20		320	0.3154	620	1.3009	920	0.8473	1220	0.6614	1520	
30		330	0.3164	630	1.2999	930	0.8474	1230	0.6614	1530	
40		340	0.4147	640	1.1937	940	0.8511	1240	0.6629	1540	
50		350	0.4325	650	1.1752	950	0.8519	1250	0.6632	1550	
60		360	0.4335	660	1.1745	960	0.8515	1260	0.6632	1560	
70	0.0080	370	0.5411	670	1.1040	970	0.8100	1270	0.6647	1570	
80	0.0080	380	0.5609	680	1.0916	980	0.8026	1280	0.6650	1580	
90	0.0082	390	0.5625	690	1.0913	990	0.8026	1290	0.6650	1590	
100	0.0322	400	0.7252	700	1.0595	1000	0.8057	1300	0.6664	1600	
110	0.0322	410	0.7542	710	1.0541	1010	0.8063	1310	0.6667	1610	
120	0.0324	420	0.7565	720	1.0537	1020	0.8063	1320	0.6667	1620	
130	0.0512	430	0.9954	730	1.0200	1030	0.8092	1330	0.6681	1630	
140	0.0512	440	1.0380	740	1.0141	1040	0.8099	1340	0.6684	1640	
150	0.0513	450	1.0409	750	1.0138	1050	0.8094	1350	0.6679	1650	
160	0.0663	460	1.3465	760	0.9784	1060	0.7667	1360	0.6224	1660	
170	0.0663	470	1.4017	770	0.9722	1070	0.7590	1370	0.6141	1670	
180	0.0664	480	1.4264	780	0.9718	1080	0.7590	1380	0.6141	1680	
190	0.0741	490	4.0444	790	0.9350	1090	0.7614	1390	0.6152	1690	
200	0.0741	500	4.5034	800	0.9285	1100	0.7618	1400	0.6154	1700	
210	0.0741	510	4.4868	810	0.9285	1110	0.7614	1410	0.6155	1710	
220	0.0794	520	2.7129	820	0.9342	1120	0.7178	1420	0.6165	1720	
230	0.0794	530	2.4142	830	0.9354	1130	0.7099	1430	0.6168	1730	
240	0.0797	540	2.4096	840	0.9350	1140	0.7100	1440	0.6119	1740	
250	0.1163	550	1.9212	850	0.8963	1150	0.7119	1450	0.0948	1750	
260	0.1221	560	1.8372	860	0.8895	1160	0.7123	1460		1760	
270	0.1228	570	1.8338	870	0.8895	1170	0.7118	1470		1770	
280	0.1984	580	1.4790	880	0.8941	1180	0.6675	1480		1780	
290	0.2114	590	1.4169	890	0.8951	1190	0.6595	1490		1790	
300	0.2122	600	1.4160	900	0.8947	1200	0.6595	1500		1800	

Figure 8: 10-Year Predevelopment Runoff Summary Basin A

DETAIL BASIN SUMMARY

BASIN ID: 10YD-A NAME: 10 YEAR DEVELOPED BASIN A
SCS METHODOLOGY

TOTAL AREA.....:	9.70 Acres	BASEFLOWS:	0.00 cfs
RAINFALL TYPE....:	TYPE1A		PERV IMP
PRECIPITATION....:	3.30 inches	AREA..:	4.52 Acres 5.19 Acres
TIME INTERVAL....:	10.00 min	CN....:	86.00 98.00
		TC....:	10.00 min 5.00 min

ABSTRACTION COEFF: 0.20
PEAK RATE: 5.78 cfs VOL: 1.99 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		310	0.7347	610	1.5006	910	0.9293	1210	0.7080	1510	
20		320	0.7427	620	1.4919	920	0.9256	1220	0.7081	1520	
30		330	0.7438	630	1.4906	930	0.9256	1230	0.7081	1530	
40		340	0.8629	640	1.3460	940	0.9277	1240	0.7090	1540	
50		350	0.8721	650	1.3364	950	0.9281	1250	0.7091	1550	
60	0.0003	360	0.8732	660	1.3356	960	0.9276	1260	0.7091	1560	
70	0.0440	370	0.9964	670	1.2392	970	0.8760	1270	0.7099	1570	
80	0.0440	380	1.0066	680	1.2329	980	0.8722	1280	0.7101	1580	
90	0.0451	390	1.0084	690	1.2325	990	0.8722	1290	0.7101	1590	
100	0.1775	400	1.2173	700	1.1862	1000	0.8739	1300	0.7108	1600	
110	0.1775	410	1.2323	710	1.1834	1010	0.8742	1310	0.7110	1610	
120	0.1783	420	1.2349	720	1.1830	1020	0.8742	1320	0.7110	1620	
130	0.2820	430	1.5427	730	1.1356	1030	0.8758	1330	0.7117	1630	
140	0.2820	440	1.5647	740	1.1326	1040	0.8761	1340	0.7119	1640	
150	0.2827	450	1.5679	750	1.1322	1050	0.8757	1350	0.7114	1650	
160	0.3651	460	1.9414	760	1.0840	1060	0.8234	1360	0.6576	1660	
170	0.3651	470	1.9699	770	1.0808	1070	0.8194	1370	0.6533	1670	
180	0.3655	480	2.0002	780	1.0803	1080	0.8194	1380	0.6533	1680	
190	0.4079	490	5.5394	790	1.0313	1090	0.8207	1390	0.6539	1690	
200	0.4079	500	5.7760	800	1.0279	1100	0.8209	1400	0.6541	1700	
210	0.4082	510	5.7532	810	1.0280	1110	0.8205	1410	0.6541	1710	
220	0.4369	520	3.0629	820	1.0311	1120	0.7677	1420	0.6546	1720	
230	0.4369	530	2.9089	830	1.0317	1130	0.7636	1430	0.6548	1730	
240	0.4374	540	2.9029	840	1.0312	1140	0.7636	1440	0.6496	1740	
250	0.5009	550	2.2040	850	0.9812	1150	0.7647	1450	0.0489	1750	
260	0.5039	560	2.1606	860	0.9776	1160	0.7649	1460		1760	
270	0.5049	570	2.1565	870	0.9776	1170	0.7644	1470		1770	
280	0.6129	580	1.6740	880	0.9802	1180	0.7113	1480		1780	
290	0.6196	590	1.6420	890	0.9806	1190	0.7071	1490		1790	
300	0.6206	600	1.6408	900	0.9802	1200	0.7071	1500		1800	

Figure 9: 10-Year Post-Development Runoff Summary Basin A

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DETAIL BASIN SUMMARY

BASIN ID: 100YP-A NAME: 100 YEAR P-DEVELOPED BASIN A
SCS METHODOLOGY

TOTAL AREA.....:	9.70 Acres	BASEFLOWS:	0.00 cfs
RAINFALL TYPE....:	TYPE1A		PERV IMP
PRECIPITATION....:	4.70 inches	AREA..:	8.76 Acres 0.94 Acres
TIME INTERVAL....:	10.00 min	CN....:	86.00 98.00
		TC....:	10.00 min 5.00 min

ABSTRACTION COEFF: 0.20
PEAK RATE: 7.65 cfs VOL: 2.59 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		310	0.7074	610	2.0938	910	1.3113	1210	0.9991	1510	
20		320	0.7350	620	2.0639	920	1.2997	1220	0.9994	1520	
30		330	0.7365	630	2.0622	930	1.2997	1230	0.9994	1530	
40	0.0003	340	0.8988	640	1.8857	940	1.3033	1240	1.0008	1540	
50	0.0003	350	0.9290	650	1.8540	950	1.3041	1250	1.0011	1550	
60	0.0006	360	0.9307	660	1.8528	960	1.3035	1260	1.0011	1560	
70	0.0271	370	1.1030	670	1.7353	970	1.2383	1270	1.0024	1570	
80	0.0271	380	1.1354	680	1.7142	980	1.2264	1280	1.0027	1580	
90	0.0274	390	1.1380	690	1.7137	990	1.2264	1290	1.0027	1590	
100	0.0651	400	1.4068	700	1.6583	1000	1.2293	1300	1.0040	1600	
110	0.0651	410	1.4559	710	1.6485	1010	1.2299	1310	1.0043	1610	
120	0.0653	420	1.4596	720	1.6479	1020	1.2300	1320	1.0043	1620	
130	0.0906	430	1.8515	730	1.5906	1030	1.2328	1330	1.0056	1630	
140	0.0906	440	1.9229	740	1.5803	1040	1.2333	1340	1.0059	1640	
150	0.0908	450	1.9275	750	1.5797	1050	1.2327	1350	1.0052	1650	
160	0.1100	460	2.4138	760	1.5207	1060	1.1662	1360	0.9361	1660	
170	0.1100	470	2.5033	770	1.5100	1070	1.1541	1370	0.9234	1670	
180	0.1104	480	2.5442	780	1.5095	1080	1.1541	1380	0.9234	1680	
190	0.1535	490	6.8686	790	1.4489	1090	1.1563	1390	0.9244	1690	
200	0.1609	500	7.6468	800	1.4380	1100	1.1568	1400	0.9246	1700	
210	0.1618	510	7.6174	810	1.4380	1110	1.1562	1410	0.9246	1710	
220	0.2541	520	4.5005	820	1.4436	1120	1.0889	1420	0.9256	1720	
230	0.2725	530	3.9522	830	1.4448	1130	1.0765	1430	0.9258	1730	
240	0.2735	540	3.9444	840	1.4442	1140	1.0765	1440	0.9184	1740	
250	0.3771	550	3.1110	850	1.3818	1150	1.0783	1450	0.1432	1750	
260	0.3966	560	2.9626	860	1.3704	1160	1.0787	1460		1760	
270	0.3978	570	2.9570	870	1.3705	1170	1.0781	1470		1770	
280	0.5321	580	2.3690	880	1.3749	1180	1.0101	1480		1780	
290	0.5564	590	2.2633	890	1.3759	1190	0.9976	1490		1790	
300	0.5578	600	2.2617	900	1.3753	1200	0.9976	1500		1800	

Figure 10: 100-Year Predevelopment Runoff Summary Basin A

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DETAIL BASIN SUMMARY

BASIN ID: 100YD-A NAME: 100 YEAR DEVELOPED BASIN A
SCS METHODOLOGY

TOTAL AREA.....:	9.70 Acres	BASEFLOWS:	0.00 cfs
RAINFALL TYPE....:	TYPE1A	PERV	IMP
PRECIPITATION....:	4.70 inches	AREA..:	4.52 Acres 5.19 Acres
TIME INTERVAL....:	10.00 min	CN....:	86.00 98.00
		TC....:	10.00 min 5.00 min

ABSTRACTION COEFF: 0.20
PEAK RATE: 8.92 cfs VOL: 3.03 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		310	1.2302	610	2.2549	910	1.3742	1210	1.0391	1510	
20		320	1.2444	620	2.2394	920	1.3682	1220	1.0393	1520	
30		330	1.2459	630	2.2375	930	1.3682	1230	1.0393	1530	
40	0.0019	340	1.4233	640	2.0174	940	1.3702	1240	1.0400	1540	
50	0.0019	350	1.4389	650	2.0010	950	1.3705	1250	1.0402	1550	
60	0.0030	360	1.4405	660	1.9998	960	1.3699	1260	1.0402	1560	
70	0.1490	370	1.6223	670	1.8531	970	1.2931	1270	1.0409	1570	
80	0.1490	380	1.6390	680	1.8422	980	1.2869	1280	1.0410	1580	
90	0.1507	390	1.6417	690	1.8416	990	1.2869	1290	1.0411	1590	
100	0.3584	400	1.9569	700	1.7701	1000	1.2885	1300	1.0418	1600	
110	0.3584	410	1.9822	710	1.7650	1010	1.2888	1310	1.0419	1610	
120	0.3595	420	1.9863	720	1.7644	1020	1.2888	1320	1.0419	1620	
130	0.4990	430	2.4505	730	1.6918	1030	1.2903	1330	1.0426	1630	
140	0.4990	440	2.4874	740	1.6865	1040	1.2906	1340	1.0427	1640	
150	0.4999	450	2.4922	750	1.6859	1050	1.2900	1350	1.0420	1650	
160	0.6055	460	3.0492	760	1.6124	1060	1.2124	1360	0.9631	1660	
170	0.6055	470	3.0954	770	1.6069	1070	1.2061	1370	0.9565	1670	
180	0.6060	480	3.1416	780	1.6062	1080	1.2062	1380	0.9565	1680	
190	0.6691	490	8.5139	790	1.5319	1090	1.2074	1390	0.9571	1690	
200	0.6729	500	8.9151	800	1.5263	1100	1.2076	1400	0.9572	1700	
210	0.6735	510	8.8794	810	1.5263	1110	1.2069	1410	0.9572	1710	
220	0.7473	520	4.7081	820	1.5293	1120	1.1290	1420	0.9577	1720	
230	0.7568	530	4.4254	830	1.5299	1130	1.1226	1430	0.9578	1730	
240	0.7578	540	4.4162	840	1.5293	1140	1.1226	1440	0.9502	1740	
250	0.8688	550	3.3428	850	1.4539	1150	1.1236	1450	0.0738	1750	
260	0.8788	560	3.2663	860	1.4481	1160	1.1238	1460		1760	
270	0.8802	570	3.2600	870	1.4481	1170	1.1231	1470		1770	
280	1.0445	580	2.5266	880	1.4505	1180	1.0448	1480		1780	
290	1.0570	590	2.4721	890	1.4510	1190	1.0383	1490		1790	
300	1.0585	600	2.4703	900	1.4504	1200	1.0383	1500		1800	

Figure 11: 100-Year Post-Development Runoff Summary

STAGE STORAGE TABLE

TRAPEZOIDAL BASIN ID No. POND-A
Description: DETENTION POND BASIN A
Length: 300.00 ft. Width: 30.00 ft.
Side Slope 1: 3 Side Slope 3: 3
Side Slope 2: 3 Side Slope 4: 3
Infiltration Rate: 0.00 min/inch

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
1.00	0.0000	0.0000	1.80	7840	0.1800	2.60	16984	0.3899	3.40	27468	0.6306
1.10	909.91	0.0209	1.90	8911	0.2046	2.70	18220	0.4183	3.50	28875	0.6629
1.20	1840	0.0422	2.00	10002	0.2296	2.80	19478	0.4471	3.60	30303	0.6957
1.30	2789	0.0640	2.10	11114	0.2551	2.90	20756	0.4765	3.70	31753	0.7290
1.40	3759	0.0863	2.20	12246	0.2811	3.00	22056	0.5063	3.80	33225	0.7627
1.50	4749	0.1090	2.30	13399	0.3076	3.10	23377	0.5367	3.90	34719	0.7970
1.60	5759	0.1322	2.40	14573	0.3346	3.20	24719	0.5675	4.00	36234	0.8318
1.70	6789	0.1559	2.50	15768	0.3620	3.30	26083	0.5988	4.00	36234	0.8318

Figure 12: Basin A Pond Storage

LEVEL POOL TABLE SUMMARY

<--------DESCRIPTION--------->	MATCH (cfs)	INFLOW (cfs)	-STO- --id-	-DIS- --id-	<-PEAK-> <-STAGE>	id	OUTFLOW (cfs)	STORAGE VOL (cf)
2 YEAR COMPARE A	1.31	3.82	POND-A	BASIN-A	2.17	1	1.31	11951.89 cf
10 YEAR COMPARE A	4.50	5.78	POND-A	BASIN-A	2.77	2	1.92	19113.23 cf
100 YEAR COMPARE A	7.65	8.92	POND-A	BASIN-A	3.75	3	2.59	32444.66 cf
2 YEAR COMPARE B	0.60	1.97	POND-B	BASIN-B	2.23	4	0.60	7213.09 cf
10 YEAR COMPARE B	2.14	2.97	POND-B	BASIN-B	2.82	5	0.87	11388.12 cf
100 YEAR COMPARE B	3.74	4.56	POND-B	BASIN-B	3.74	6	1.15	19009.42 cf

Figure 13: Basins A&B Level Pool Routing

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STAGE DISCHARGE TABLE

MULTIPLE ORIFICE ID No. BASIN-A
Description: DETENTION POND ORIFICE BASIN A
Outlet Elev: 1.00
Elev: 1.50 ft Orifice Diameter: 5.7000 in.
Elev: 2.00 ft Orifice 2 Diameter: 5.6000 in.

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
1.00	0.0000	1.00	0.0000	1.00	0.0000	1.00	0.0000

Figure 14: Basin A Orifice Discharge

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DETAIL BASIN SUMMARY

BASIN ID: 50%2YP-B NAME: 50% 2 YEAR P-DEVELOPED BASIN B
SCS METHODOLOGY
TOTAL AREA.....: 2.46 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERV IMP
PRECIPITATION....: 2.40 inches AREA..: 2.46 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 86.00 98.00
TC....: 10.00 min 5.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 0.60 cfs VOL: 0.23 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		310	0.0057	610	0.1999	910	0.1379	1210	0.1095	1510	
20		320	0.0069	620	0.1973	920	0.1367	1220	0.1096	1520	
30		330	0.0071	630	0.1972	930	0.1367	1230	0.1096	1530	
40		340	0.0207	640	0.1831	940	0.1377	1240	0.1100	1540	
50		350	0.0236	650	0.1801	950	0.1379	1250	0.1101	1550	
60		360	0.0237	660	0.1800	960	0.1378	1260	0.1101	1560	
70		370	0.0395	670	0.1707	970	0.1317	1270	0.1105	1570	
80		380	0.0428	680	0.1688	980	0.1303	1280	0.1106	1580	
90		390	0.0430	690	0.1687	990	0.1304	1290	0.1106	1590	
100		400	0.0652	700	0.1650	1000	0.1312	1300	0.1110	1600	
110		410	0.0698	710	0.1642	1010	0.1314	1310	0.1111	1610	
120		420	0.0701	720	0.1641	1020	0.1314	1320	0.1111	1620	
130		430	0.1030	730	0.1599	1030	0.1322	1330	0.1115	1630	
140		440	0.1100	740	0.1590	1040	0.1323	1340	0.1115	1640	
150		450	0.1104	750	0.1589	1050	0.1323	1350	0.1115	1650	
160		460	0.1551	760	0.1543	1060	0.1257	1360	0.1042	1660	
170		470	0.1645	770	0.1533	1070	0.1243	1370	0.1026	1670	
180		480	0.1679	780	0.1533	1080	0.1244	1380	0.1026	1680	
190		490	0.5214	790	0.1483	1090	0.1250	1390	0.1030	1690	
200		500	0.5959	800	0.1472	1100	0.1251	1400	0.1030	1700	
210		510	0.5939	810	0.1472	1110	0.1251	1410	0.1030	1710	
220		520	0.3880	820	0.1487	1120	0.1183	1420	0.1033	1720	
230		530	0.3447	830	0.1490	1130	0.1169	1430	0.1034	1730	
240		540	0.3441	840	0.1490	1140	0.1169	1440	0.1026	1740	
250		550	0.2830	850	0.1435	1150	0.1174	1450	0.0178	1750	
260		560	0.2702	860	0.1423	1160	0.1175	1460		1760	
270		570	0.2697	870	0.1423	1170	0.1175	1470		1770	
280		580	0.2222	880	0.1436	1180	0.1105	1480		1780	
290		590	0.2122	890	0.1438	1190	0.1091	1490		1790	
300		600	0.2120	900	0.1438	1200	0.1091	1500		1800	

Figure 15: 50% 2-Year Predevelopment Runoff Summary Basin B

DETAIL BASIN SUMMARY

BASIN ID: 2YD-B NAME: 2 YEAR DEVELOPED BASIN B
SCS METHODOLOGY

TOTAL AREA.....:	4.93 Acres	BASEFLOWS:	0.00 cfs
RAINFALL TYPE....:	TYPE1A	PERV	IMP
PRECIPITATION....:	2.40 inches	AREA..:	2.17 Acres 2.76 Acres
TIME INTERVAL....:	10.00 min	CN....:	86.00 98.00
		TC....:	10.00 min 5.00 min

ABSTRACTION COEFF: 0.20
PEAK RATE: 1.97 cfs VOL: 0.69 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		310	0.2364	610	0.5234	910	0.3289	1210	0.2525	1510	
20		320	0.2375	620	0.5212	920	0.3278	1220	0.2526	1520	
30		330	0.2379	630	0.5208	930	0.3278	1230	0.2526	1530	
40		340	0.2802	640	0.4705	940	0.3288	1240	0.2530	1540	
50		350	0.2827	650	0.4679	950	0.3290	1250	0.2530	1550	
60		360	0.2831	660	0.4676	960	0.3288	1260	0.2530	1560	
70	0.0036	370	0.3271	670	0.4341	970	0.3106	1270	0.2534	1570	
80	0.0036	380	0.3300	680	0.4324	980	0.3095	1280	0.2535	1580	
90	0.0039	390	0.3306	690	0.4323	990	0.3095	1290	0.2535	1590	
100	0.0418	400	0.4038	700	0.4164	1000	0.3102	1300	0.2539	1600	
110	0.0418	410	0.4079	710	0.4157	1010	0.3104	1310	0.2539	1610	
120	0.0421	420	0.4088	720	0.4156	1020	0.3104	1320	0.2540	1620	
130	0.0818	430	0.5166	730	0.3993	1030	0.3112	1330	0.2543	1630	
140	0.0818	440	0.5227	740	0.3985	1040	0.3113	1340	0.2544	1640	
150	0.0820	450	0.5238	750	0.3983	1050	0.3112	1350	0.2542	1650	
160	0.1153	460	0.6556	760	0.3816	1060	0.2926	1360	0.2349	1660	
170	0.1153	470	0.6639	770	0.3807	1070	0.2914	1370	0.2336	1670	
180	0.1155	480	0.6743	780	0.3806	1080	0.2914	1380	0.2336	1680	
190	0.1353	490	1.9076	790	0.3635	1090	0.2920	1390	0.2339	1690	
200	0.1353	500	1.9732	800	0.3626	1100	0.2921	1400	0.2339	1700	
210	0.1354	510	1.9655	810	0.3626	1110	0.2919	1410	0.2339	1710	
220	0.1495	520	1.0432	820	0.3640	1120	0.2731	1420	0.2342	1720	
230	0.1495	530	1.0050	830	0.3643	1130	0.2719	1430	0.2343	1730	
240	0.1497	540	1.0030	840	0.3642	1140	0.2719	1440	0.2324	1740	
250	0.1703	550	0.7617	850	0.3466	1150	0.2724	1450	0.0157	1750	
260	0.1703	560	0.7503	860	0.3456	1160	0.2725	1460		1760	
270	0.1706	570	0.7489	870	0.3456	1170	0.2723	1470		1770	
280	0.2008	580	0.5810	880	0.3468	1180	0.2534	1480		1780	
290	0.2008	590	0.5721	890	0.3470	1190	0.2521	1490		1790	
300	0.2010	600	0.5717	900	0.3469	1200	0.2521	1500		1800	

Figure 16: 2-Year Post-Development Runoff Summary Basin B

DETAIL BASIN SUMMARY

BASIN ID: 10YP-B NAME: 10 YEAR P-DEVELOPED BASIN B
SCS METHODOLOGY

TOTAL AREA.....:	4.93 Acres	BASEFLOWS:	0.00 cfs
RAINFALL TYPE....:	TYPE1A	PERV	IMP
PRECIPITATION....:	3.30 inches	AREA..:	4.93 Acres 0.00 Acres
TIME INTERVAL....:	10.00 min	CN....:	86.00 98.00
		TC....:	10.00 min 5.00 min

ABSTRACTION COEFF: 0.20
PEAK RATE: 2.14 cfs VOL: 0.76 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		310	0.1032	610	0.6485	910	0.4254	1210	0.3303	1510	
20		320	0.1120	620	0.6390	920	0.4214	1220	0.3305	1520	
30		330	0.1125	630	0.6385	930	0.4214	1230	0.3305	1530	
40		340	0.1600	640	0.5889	940	0.4235	1240	0.3314	1540	
50		350	0.1701	650	0.5785	950	0.4239	1250	0.3315	1550	
60		360	0.1706	660	0.5782	960	0.4237	1260	0.3316	1560	
70		370	0.2235	670	0.5453	970	0.4038	1270	0.3324	1570	
80		380	0.2346	680	0.5383	980	0.3997	1280	0.3325	1580	
90		390	0.2353	690	0.5382	990	0.3997	1290	0.3325	1590	
100		400	0.3128	700	0.5237	1000	0.4014	1300	0.3333	1600	
110		410	0.3291	710	0.5206	1010	0.4017	1310	0.3335	1610	
120		420	0.3302	720	0.5204	1020	0.4017	1320	0.3335	1620	
130		430	0.4437	730	0.5048	1030	0.4034	1330	0.3343	1630	
140		440	0.4677	740	0.5015	1040	0.4037	1340	0.3344	1640	
150		450	0.4691	750	0.5014	1050	0.4035	1350	0.3342	1650	
160		460	0.6166	760	0.4849	1060	0.3829	1360	0.3121	1660	
170		470	0.6477	770	0.4814	1070	0.3785	1370	0.3074	1670	
180		480	0.6596	780	0.4812	1080	0.3786	1380	0.3074	1680	
190		490	1.8850	790	0.4639	1090	0.3799	1390	0.3080	1690	
200		500	2.1431	800	0.4602	1100	0.3802	1400	0.3081	1700	
210		510	2.1354	810	0.4602	1110	0.3799	1410	0.3081	1710	
220		520	1.3380	820	0.4634	1120	0.3588	1420	0.3087	1720	
230		530	1.1700	830	0.4641	1130	0.3544	1430	0.3089	1730	
240	0.0002	540	1.1678	840	0.4639	1140	0.3544	1440	0.3064	1740	
250	0.0157	550	0.9436	850	0.4455	1150	0.3555	1450	0.0533	1750	
260	0.0190	560	0.8963	860	0.4417	1160	0.3557	1460		1760	
270	0.0193	570	0.8947	870	0.4417	1170	0.3555	1470		1770	
280	0.0540	580	0.7289	880	0.4443	1180	0.3340	1480		1780	
290	0.0613	590	0.6940	890	0.4448	1190	0.3295	1490		1790	
300	0.0617	600	0.6936	900	0.4446	1200	0.3295	1500		1800	

Figure 17: 10-Year Predevelopment Runoff Summary Basin B

DETAIL BASIN SUMMARY

BASIN ID: 10YD-B NAME: 10 YEAR DEVELOPED BASIN B
SCS METHODOLOGY

TOTAL AREA.....:	4.93 Acres	BASEFLOWS:	0.00 cfs
RAINFALL TYPE....:	TYPE1A	PERV	IMP
PRECIPITATION....:	3.30 inches	AREA..:	2.17 Acres 2.76 Acres
TIME INTERVAL....:	10.00 min	CN....:	86.00 98.00
		TC....:	10.00 min 5.00 min

ABSTRACTION COEFF: 0.20
PEAK RATE: 2.97 cfs VOL: 1.02 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		310	0.3856	610	0.7672	910	0.4740	1210	0.3608	1510	
20		320	0.3895	620	0.7630	920	0.4722	1220	0.3609	1520	
30		330	0.3900	630	0.7624	930	0.4722	1230	0.3609	1530	
40		340	0.4511	640	0.6878	940	0.4732	1240	0.3613	1540	
50		350	0.4555	650	0.6832	950	0.4734	1250	0.3614	1550	
60	0.0002	360	0.4561	660	0.6828	960	0.4732	1260	0.3614	1560	
70	0.0234	370	0.5191	670	0.6331	970	0.4467	1270	0.3618	1570	
80	0.0234	380	0.5240	680	0.6301	980	0.4449	1280	0.3618	1580	
90	0.0239	390	0.5249	690	0.6299	990	0.4449	1290	0.3618	1590	
100	0.0943	400	0.6323	700	0.6059	1000	0.4457	1300	0.3622	1600	
110	0.0943	410	0.6395	710	0.6046	1010	0.4458	1310	0.3623	1610	
120	0.0948	420	0.6409	720	0.6044	1020	0.4458	1320	0.3623	1620	
130	0.1499	430	0.7991	730	0.5799	1030	0.4466	1330	0.3626	1630	
140	0.1499	440	0.8097	740	0.5785	1040	0.4467	1340	0.3627	1640	
150	0.1502	450	0.8113	750	0.5783	1050	0.4465	1350	0.3625	1650	
160	0.1940	460	1.0029	760	0.5534	1060	0.4197	1360	0.3349	1660	
170	0.1940	470	1.0166	770	0.5519	1070	0.4178	1370	0.3329	1670	
180	0.1942	480	1.0322	780	0.5517	1080	0.4178	1380	0.3329	1680	
190	0.2168	490	2.8558	790	0.5264	1090	0.4184	1390	0.3331	1690	
200	0.2168	500	2.9695	800	0.5248	1100	0.4185	1400	0.3332	1700	
210	0.2169	510	2.9578	810	0.5248	1110	0.4183	1410	0.3332	1710	
220	0.2322	520	1.5653	820	0.5263	1120	0.3912	1420	0.3335	1720	
230	0.2322	530	1.4913	830	0.5266	1130	0.3893	1430	0.3335	1730	
240	0.2325	540	1.4882	840	0.5264	1140	0.3893	1440	0.3309	1740	
250	0.2655	550	1.1272	850	0.5006	1150	0.3898	1450	0.0235	1750	
260	0.2669	560	1.1064	860	0.4989	1160	0.3899	1460		1760	
270	0.2674	570	1.1043	870	0.4989	1170	0.3896	1470		1770	
280	0.3232	580	0.8556	880	0.5001	1180	0.3624	1480		1780	
290	0.3264	590	0.8402	890	0.5004	1190	0.3604	1490		1790	
300	0.3269	600	0.8396	900	0.5002	1200	0.3604	1500		1800	

Figure 18: 10-Year Post-Development Runoff Summary Basin B

DETAIL BASIN SUMMARY

BASIN ID: 100YP-B NAME: 100 YEAR P-DEVELOPED BASIN B
SCS METHODOLOGY

TOTAL AREA.....:	4.93 Acres	BASEFLOWS:	0.00 cfs
RAINFALL TYPE....:	TYPE1A		PERV IMP
PRECIPITATION....:	4.70 inches	AREA..:	4.93 Acres 0.00 Acres
TIME INTERVAL....:	10.00 min	CN....:	86.00 98.00
		TC....:	10.00 min 5.00 min

ABSTRACTION COEFF: 0.20
PEAK RATE: 3.74 cfs VOL: 1.27 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		310	0.3003	610	1.0449	910	0.6587	1210	0.5027	1510	
20		320	0.3158	620	1.0281	920	0.6522	1220	0.5029	1520	
30		330	0.3165	630	1.0273	930	0.6522	1230	0.5029	1530	
40		340	0.3972	640	0.9426	940	0.6542	1240	0.5037	1540	
50		350	0.4142	650	0.9247	950	0.6546	1250	0.5039	1550	
60		360	0.4151	660	0.9242	960	0.6543	1260	0.5039	1560	
70		370	0.5015	670	0.8678	970	0.6226	1270	0.5046	1570	
80		380	0.5197	680	0.8559	980	0.6159	1280	0.5048	1580	
90		390	0.5210	690	0.8557	990	0.6159	1290	0.5048	1590	
100		400	0.6523	700	0.8294	1000	0.6175	1300	0.5055	1600	
110		410	0.6799	710	0.8238	1010	0.6178	1310	0.5057	1610	
120		420	0.6817	720	0.8236	1020	0.6179	1320	0.5057	1620	
130		430	0.8725	730	0.7962	1030	0.6194	1330	0.5064	1630	
140		440	0.9127	740	0.7904	1040	0.6197	1340	0.5066	1640	
150		450	0.9150	750	0.7901	1050	0.6194	1350	0.5062	1650	
160		460	1.1539	760	0.7617	1060	0.5869	1360	0.4722	1660	
170		470	1.2043	770	0.7558	1070	0.5801	1370	0.4651	1670	
180	0.0002	480	1.2244	780	0.7555	1080	0.5801	1380	0.4651	1680	
190	0.0199	490	3.3020	790	0.7263	1090	0.5813	1390	0.4657	1690	
200	0.0240	500	3.7396	800	0.7201	1100	0.5816	1400	0.4658	1700	
210	0.0245	510	3.7254	810	0.7202	1110	0.5813	1410	0.4658	1710	
220	0.0735	520	2.2616	820	0.7233	1120	0.5483	1420	0.4663	1720	
230	0.0838	530	1.9534	830	0.7240	1130	0.5414	1430	0.4665	1730	
240	0.0843	540	1.9495	840	0.7237	1140	0.5414	1440	0.4627	1740	
250	0.1361	550	1.5534	850	0.6934	1150	0.5424	1450	0.0805	1750	
260	0.1470	560	1.4700	860	0.6871	1160	0.5426	1460		1760	
270	0.1476	570	1.4672	870	0.6871	1170	0.5423	1470		1770	
280	0.2124	580	1.1851	880	0.6896	1180	0.5090	1480		1780	
290	0.2261	590	1.1256	890	0.6901	1190	0.5019	1490		1790	
300	0.2268	600	1.1249	900	0.6898	1200	0.5019	1500		1800	

Figure 19: 100-Year Predevelopment Runoff Summary Basin B

DETAIL BASIN SUMMARY

BASIN ID: 100YD-B NAME: 100 YEAR DEVELOPED BASIN B
SCS METHODOLOGY
TOTAL AREA.....: 4.93 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: TYPE1A PERV IMP
PRECIPITATION....: 4.70 inches AREA..: 2.17 Acres 2.76 Acres
TIME INTERVAL....: 10.00 min CN....: 86.00 98.00
TC....: 10.00 min 5.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 4.56 cfs VOL: 1.55 Ac-ft TIME: 500 min

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		310	0.6397	610	1.1495	910	0.6995	1210	0.5287	1510	
20		320	0.6465	620	1.1421	920	0.6967	1220	0.5288	1520	
30		330	0.6473	630	1.1411	930	0.6967	1230	0.5288	1530	
40	0.0010	340	0.7379	640	1.0281	940	0.6976	1240	0.5292	1540	
50	0.0010	350	0.7453	650	1.0202	950	0.6978	1250	0.5293	1550	
60	0.0016	360	0.7461	660	1.0196	960	0.6975	1260	0.5293	1560	
70	0.0792	370	0.8387	670	0.9443	970	0.6581	1270	0.5296	1570	
80	0.0792	380	0.8467	680	0.9391	980	0.6552	1280	0.5297	1580	
90	0.0801	390	0.8481	690	0.9387	990	0.6552	1290	0.5297	1590	
100	0.1905	400	1.0095	700	0.9020	1000	0.6559	1300	0.5300	1600	
110	0.1905	410	1.0217	710	0.8995	1010	0.6561	1310	0.5301	1610	
120	0.1910	420	1.0237	720	0.8992	1020	0.6561	1320	0.5301	1620	
130	0.2652	430	1.2616	730	0.8619	1030	0.6568	1330	0.5304	1630	
140	0.2652	440	1.2793	740	0.8594	1040	0.6569	1340	0.5305	1640	
150	0.2657	450	1.2817	750	0.8590	1050	0.6566	1350	0.5301	1650	
160	0.3218	460	1.5666	760	0.8213	1060	0.6169	1360	0.4898	1660	
170	0.3218	470	1.5888	770	0.8187	1070	0.6139	1370	0.4866	1670	
180	0.3221	480	1.6124	780	0.8183	1080	0.6139	1380	0.4866	1680	
190	0.3546	490	4.3704	790	0.7802	1090	0.6145	1390	0.4869	1690	
200	0.3565	500	4.5632	800	0.7775	1100	0.6146	1400	0.4869	1700	
210	0.3568	510	4.5449	810	0.7775	1110	0.6143	1410	0.4869	1710	
220	0.3937	520	2.3964	820	0.7790	1120	0.5744	1420	0.4872	1720	
230	0.3983	530	2.2606	830	0.7793	1130	0.5713	1430	0.4872	1730	
240	0.3988	540	2.2559	840	0.7789	1140	0.5713	1440	0.4834	1740	
250	0.4553	550	1.7040	850	0.7403	1150	0.5718	1450	0.0355	1750	
260	0.4601	560	1.6672	860	0.7375	1160	0.5719	1460		1760	
270	0.4609	570	1.6640	870	0.7375	1170	0.5715	1470		1770	
280	0.5452	580	1.2874	880	0.7387	1180	0.5315	1480		1780	
290	0.5512	590	1.2612	890	0.7389	1190	0.5284	1490		1790	
300	0.5519	600	1.2603	900	0.7386	1200	0.5284	1500		1800	

Figure 20: 100-Year Post-Development Runoff Summary Basin B

STAGE STORAGE TABLE

TRAPEZOIDAL BASIN ID No. POND-B
Description: DETENTION POND BASIN B
Length: 200.00 ft. Width: 25.00 ft.
Side Slope 1: 3 Side Slope 3: 3
Side Slope 2: 3 Side Slope 4: 3
Infiltration Rate: 0.00 min/inch

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
1.00	0.0000	0.0000	1.80	4438	0.1019	2.60	9777	0.2245	3.40	16054	0.3685
1.10	506.76	0.0116	1.90	5055	0.1161	2.70	10510	0.2413	3.50	16906	0.3881
1.20	1027	0.0236	2.00	5687	0.1306	2.80	11257	0.2584	3.60	17774	0.4080
1.30	1561	0.0358	2.10	6333	0.1454	2.90	12019	0.2759	3.70	18657	0.4283
1.40	2109	0.0484	2.20	6993	0.1605	3.00	12796	0.2938	3.80	19555	0.4489
1.50	2670	0.0613	2.30	7667	0.1760	3.10	13588	0.3119	3.90	20469	0.4699
1.60	3246	0.0745	2.40	8356	0.1918	3.20	14395	0.3305	4.00	21399	0.4913
1.70	3835	0.0880	2.50	9059	0.2080	3.30	15217	0.3493	4.00	21399	0.4913

Figure 21: Basin B Pond Storage

STAGE DISCHARGE TABLE

MULTIPLE ORIFICE ID No. BASIN-B
Description: DETENTION POND ORIFICE BASIN B
Outlet Elev: 1.00
Elev: 1.50 ft Orifice Diameter: 3.6000 in.
Elev: 2.00 ft Orifice 2 Diameter: 4.0000 in.

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
1.00	0.0000	1.00	0.0000	1.00	0.0000	1.00	0.0000

Figure 22: Basin B Orifice Discharge